

Mathematics Level 7

Chapter 2 — Geographies of interconnection

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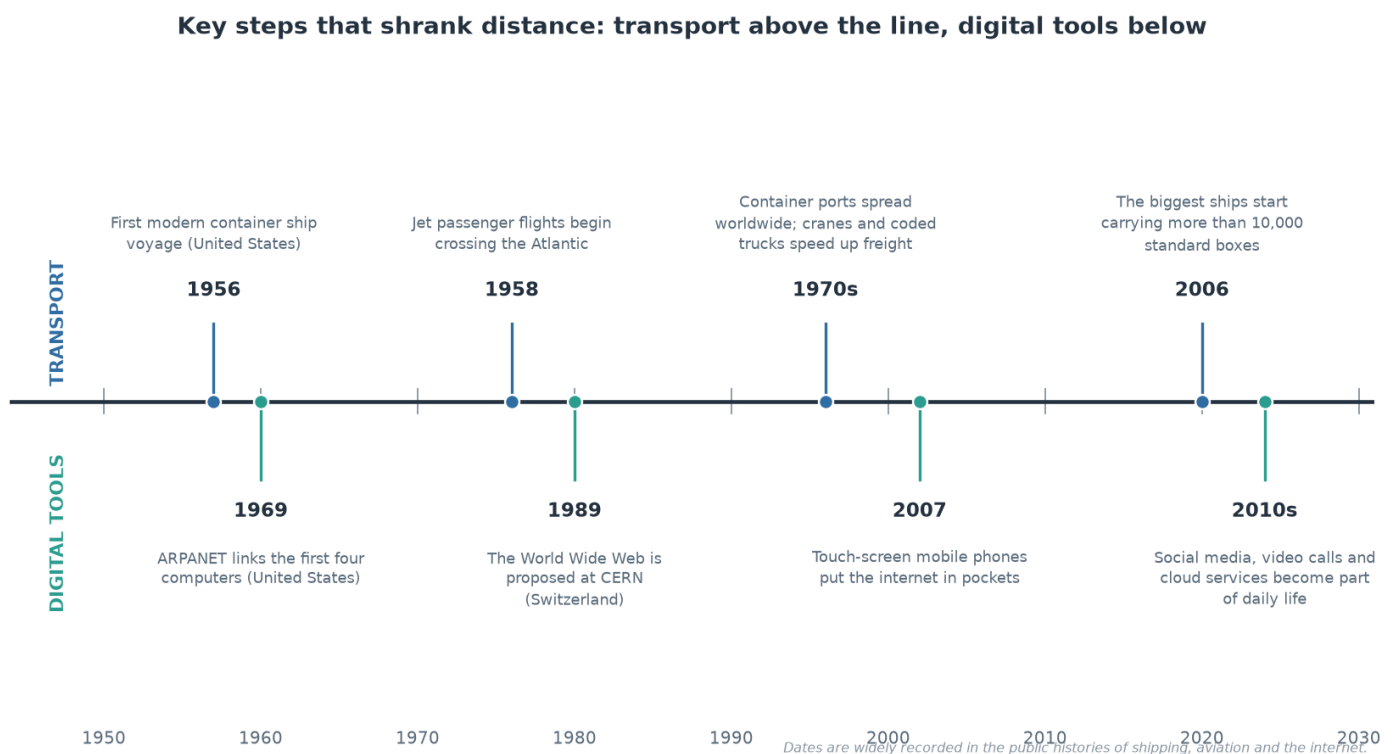
Transport and digital tools: changing lives, places and connections

Theory

This section is about **change over time**: how faster, cheaper transport and the rise of digital tools have changed people's lives, the places they live in, and their **interconnection** (two-way connection) with the people, services and information of other places. The content descriptor for this section is **VC2HG10K05**.

The teaching sequence below follows the six elaborations linked to this code, **VC2HG10K05.E01–VC2HG10K05.E06**. Key terms — **supply chain, logistics, digital divide** and others — are defined where they first appear.

Part 1 — A shrinking world. In 1900, a letter from Melbourne to London travelled by ship and took about five weeks. Today, a video call between the same two cities begins in about a second. Two sets of changes drove this. First, transport became faster and cheaper: container ships carry far more goods with far fewer workers than the ships of 1950 did, and jet aircraft put every capital city within a day or two of every other. Second, information became faster and cheaper still: the internet, mobile phones and social media move messages at network speed, at almost no cost per message. Geographers describe the result as a **shrinking world** — the distances on the map have not changed, but the time and cost to cross them have fallen. Figure 1 shows some of the key changes since 1950.



Two-lane timeline of transport and digital milestones from 1956 to the 2010s, including container shipping, jet travel, the internet and mobile phones.

Figure 1. Change in transport and digital tools since 1950. Container ships and jets cut the time and cost of moving people and goods; the internet and mobile phones cut the time and cost of moving information.

Part 2 — Access to transportation (VC2HG10K05.E01). Access means how easily people can reach the things they need. Access to transportation affects how people **perceive** (see or feel), use and connect to services and opportunities: hospitals, universities, big shops, jobs, sport and music. Figure 2 uses a real Australian example: Mildura, a regional city in north-west Victoria.

Transport access changes what a place can reach: Mildura and Melbourne



Schematic map showing the flight and driving options from Mildura to Melbourne, and Melbourne's direct international flights to Singapore, Los Angeles, Auckland and Dubai.

Figure 2. Transport access changes what a place can reach (schematic, not to scale). Mildura has direct flights to Melbourne and Sydney (Mildura Airport, retrieved 25 August 2026); by road, Melbourne is about 540 km away, or 6 hours or more of driving.

A Mildura student who needs a specialist hospital in Melbourne can fly there in about 1 hour 30 minutes, make a morning appointment and be home the same night. By car, the same trip eats a whole day each way, and a night away from home becomes likely. The flight does not move the hospital closer — it changes how the hospital can be *used*, and how near or far Melbourne *feels*. The same idea works at the next scale up: Melbourne is Victoria's main international airport, so a Mildura resident can connect through it to Singapore, Los Angeles, Auckland or Dubai within a day. Good access links a small city into a much bigger web of services; poor access cuts it back to what is close by.

Part 3 — Transport and information networks connect people to goods (VC2HG10K05.E02). Almost nothing in your bag travelled straight from a nearby paddock or factory. A **supply chain** is the sequence of steps that brings a product from raw material to buyer: growing or mining, processing, making, storing, selling. **Logistics** is the organisation of that movement — which transport mode, which route, how fast, and at what cost. Information networks (orders, barcodes, container tracking) run beside the physical chain at every step. Figure 3 traces a real example, an Australian cotton T-shirt.

From cotton crop to T-shirt: one product, many places



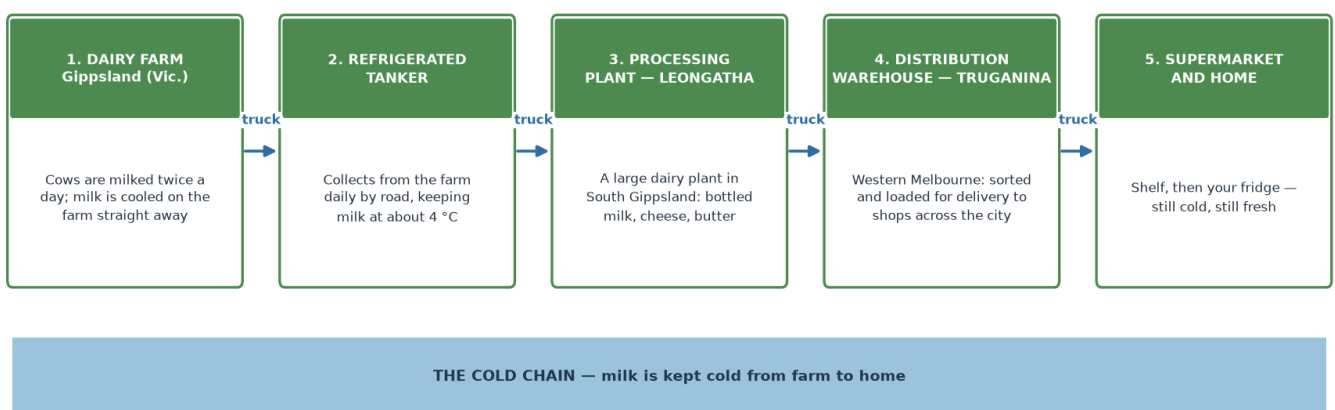
A typical path for a cotton T-shirt sold in Australia. Places are real; the exact route differs between brands.

Flow diagram of a seven-step supply chain from a cotton farm in the Namoi Valley near Narrabri, through gin, export port, spinning mill, garment factory and warehouse, to a shop and home, with transport modes labelled.

Figure 3. From cotton crop to T-shirt: a typical journey for Australian cotton (elaboration VC2HG10K05.E02). The Namoi Valley near Narrabri (NSW) is one of Australia's main cotton-growing areas; most steps after the port happen overseas, where spinning and sewing are done at large scale and lower cost.

The same idea applies to food. Figure 4 shows a Victorian **cold chain** — a supply chain in which every step is refrigerated, so perishable food stays fresh.

Farm to table: how fresh milk reaches the shops in Victoria



Every step depends on refrigerated road transport and fast logistics. If a tanker is delayed, the milk is at risk.

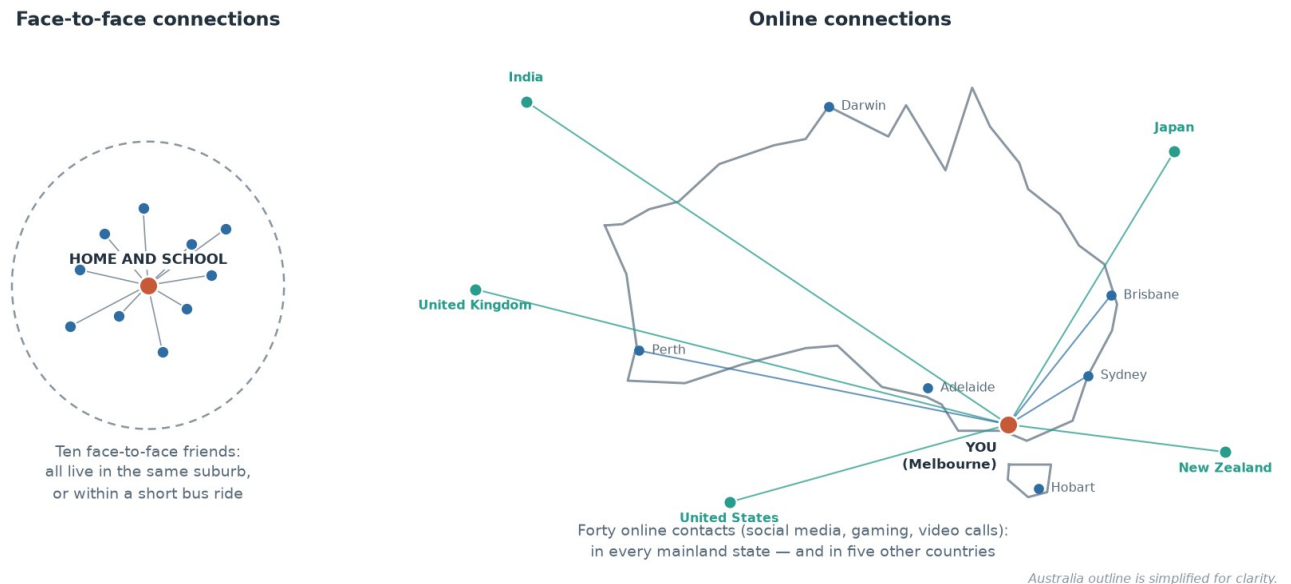
Flow diagram of a five-step cold chain from a Gippsland dairy farm, by refrigerated tanker, to a processing plant at Leongatha, a distribution warehouse at Truganina, and a supermarket and home.

Figure 4. Farm to table: how fresh milk reaches the shops in Victoria. Gippsland is one of Australia's best-known dairy regions; Leongatha has a large dairy processing plant; Truganina, in western Melbourne, is a major distribution hub for supermarkets. If one refrigerated truck is delayed, the whole chain feels it.

Both figures show the same geography: each step sits where that work is done best — Gins near the farms, factories near skilled workers and cheap power, warehouses near the buyers — and cheap, reliable transport and fast information are what hold the chain together.

Part 4 — Face-to-face and online connections (VC2HG10K05.E03). Transport moves people and goods; digital tools move information and friendship. In January 2025, about 26.1 million of Australia’s 26.8 million people (97.1%) used the internet, and about 20.9 million (77.9%) had social media identities (DataReportal, *Digital 2025: Australia*, retrieved 25 August 2026). Figure 5 is a sketch of what one student’s connections can look like.

Where are the people you connect with? (an example sketch, not real data)



Two-panel sketch comparing ten face-to-face friends clustered near home and school with forty online contacts spread across every mainland state and five other countries.

Figure 5. The **spatial distribution** (where things are located) of connections: face-to-face contacts cluster close to home and school, while online contacts spread across the country and the world. The sketch is an example, not real data — a class survey (Part 7) can build a real one.

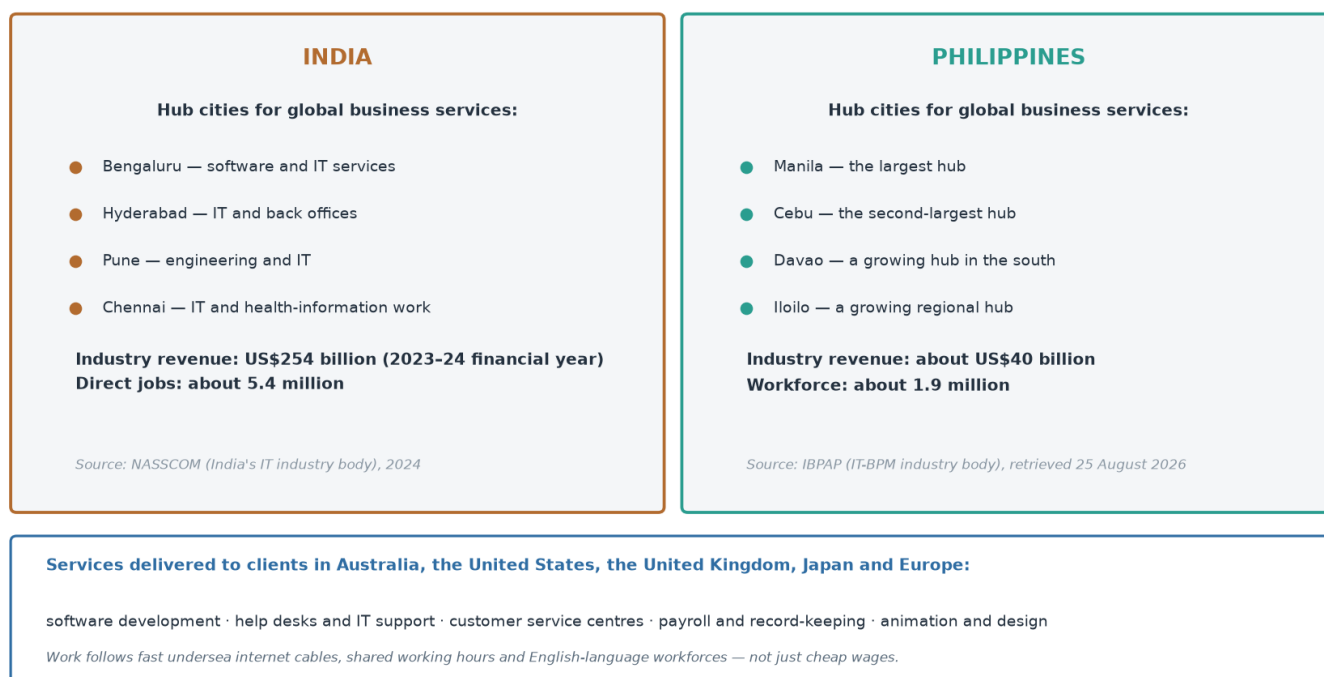
This raises a genuine geographic debate: **has distance been wiped out (removed completely) as a limit on how people interact?** The elaboration asks you to discuss it, so steelman (argue as strongly as possible) each side before choosing a view.

- **Yes, distance is largely dead.** A video call to Perth costs no more than a call to the next street; games, news and ideas move at network speed; a regional student can join a city study group, a gaming clan or a fan community without leaving their desk. The *spatial distribution* of friendship no longer has to match the spatial distribution of bodies.
- **No, distance still matters.** Physical goods still cross oceans by ship for weeks (Figure 3); time zones still decide when a call is possible; language, laws and culture still differ from place to place; and when an undersea cable is cut or a border closes its airspace, distance returns at once. Access to the tools is also unequal, as Part 6 shows.

A strong answer holds both truths: for *information*, distance has shrunk almost to nothing for most Australians; for *people, goods and unequal access*, distance is still a real constraint.

Part 5 — Global business services in Asia (VC2HG10K05.E04). Digital tools also moved *work*. **Global business services** are office tasks — software development, help desks and IT support, customer service centres, payroll and record-keeping, animation and design — performed in one country for clients in other countries. Since the 1990s, India, the Philippines and other countries have specialised in this work. Figure 6 shows two of the biggest hubs.

Places in Asia that serve the world: two business-service hubs



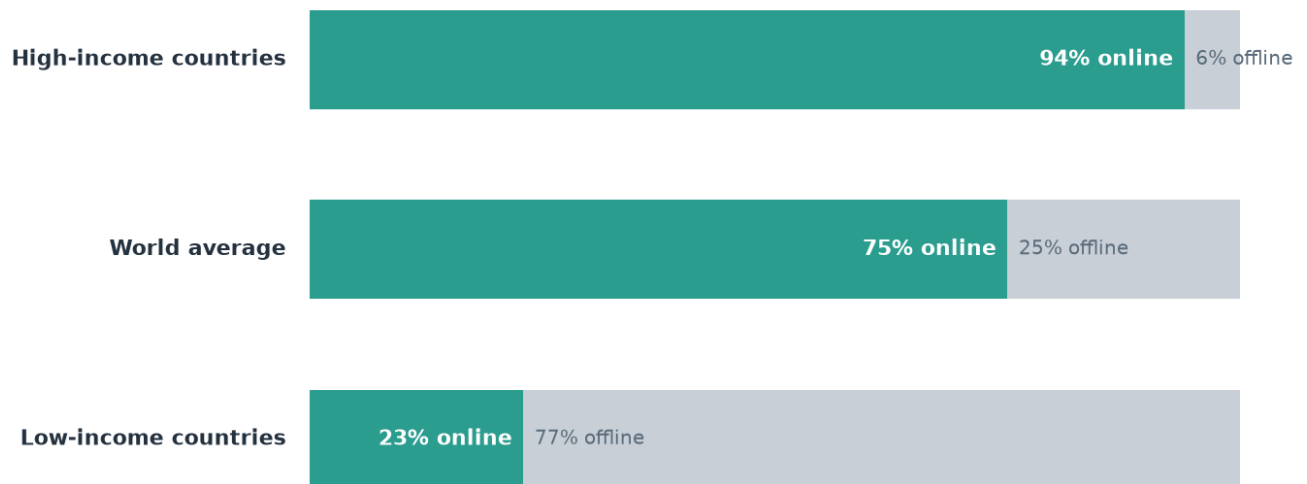
Two panels summarising global business-service hubs: India (Bengaluru, Hyderabad, Pune, Chennai; industry revenue US\$254 billion in 2023–24; about 5.4 million direct jobs) and the Philippines (Manila, Cebu, Davao, Iloilo; about US\$40 billion; about 1.9 million workers), plus a footer listing the services delivered to clients in Australia and other countries.

Figure 6. Places in Asia that serve the world. India's industry revenue was US\$254 billion in the 2023–24 financial year with about 5.4 million direct jobs (NASSCOM, India's IT industry body, 2024); the Philippines' industry reports about US\$40 billion in revenue and about 1.9 million workers (IBPAP, the Philippines' IT-BPM industry body, retrieved 25 August 2026).

Why *these* cities? Not only wages. Work follows fast undersea internet cables, shared working hours with clients in Sydney, Tokyo and London, and large English-speaking workforces with university graduates. Reflect, as the elaboration asks: is distance still a constraint here? An Australian bank's code can be written in Bengaluru while Australia sleeps — but the work has not spread evenly across the map. It clusters in particular cities with particular connections, so distance has changed shape rather than disappeared.

Part 6 — The digital divide (VC2HG10K05.E05). Not everyone is in the shrinking world. The **digital divide** — the gap between people who can and cannot get reliable internet and digital tools, in the usage of the International Telecommunication Union (ITU), the United Nations' specialised agency for information and communication technologies — exists *between* countries (Figure 7) and *within* countries (Figure 8).

The digital divide between countries: share of people using the internet (2025)



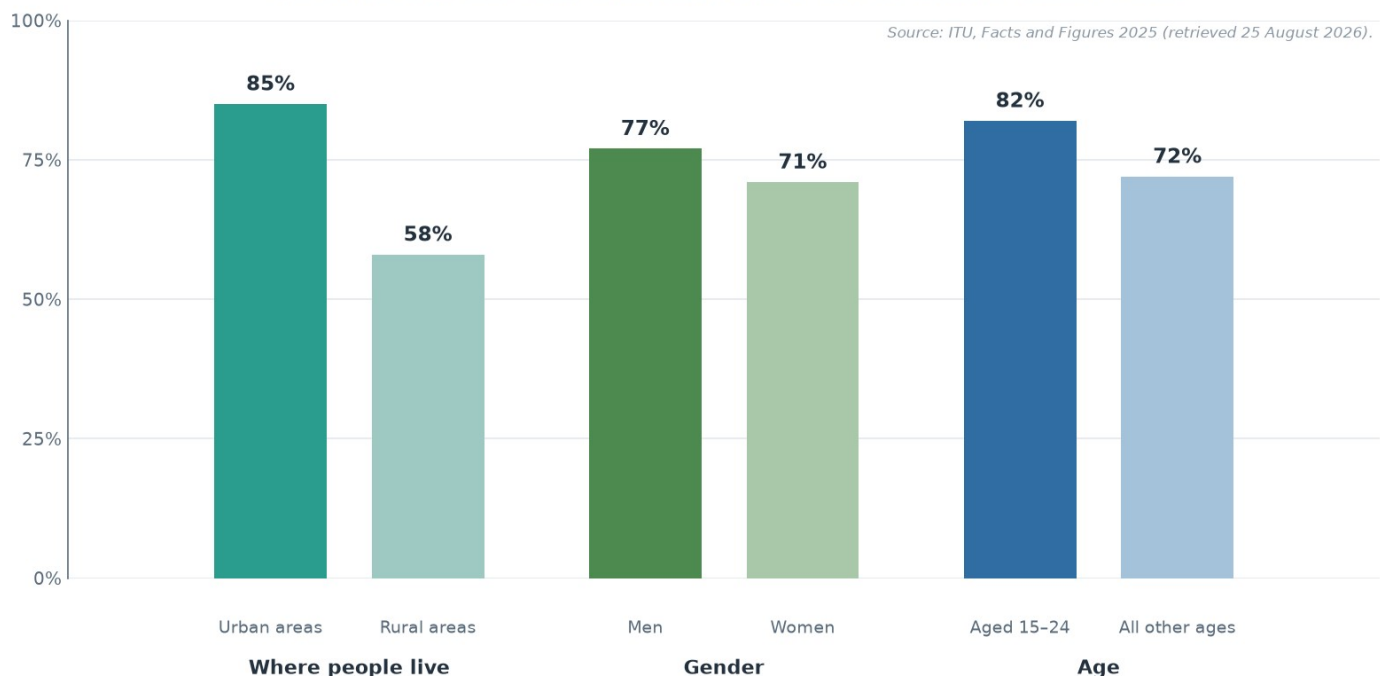
2.2 billion people remain offline, and 96% of them live in low- and middle-income countries.

0% 25% 50% 75% 100%
Source: ITU, Facts and Figures 2025 (retrieved 25 August 2026).

Bar chart of the share of people online in 2025: high-income countries 94%, the world 75%, low-income countries 23%, with a note that 2.2 billion people remain offline and 96% of them live in low- and middle-income countries.

Figure 7. The divide between countries, 2025 (ITU, *Facts and Figures 2025*, retrieved 25 August 2026). About 6 billion people — roughly three-quarters of humanity — were online; 2.2 billion remained offline, and 96% of them lived in low- and middle-income countries.

The divide is inside countries too: who is online? (world totals, 2025)



Source: ITU, Facts and Figures 2025 (retrieved 25 August 2026).

Grouped bar chart of 2025 internet use: urban 85% versus rural 58%; men 77% versus women 71%; people aged 15–24 at 82% versus 72% for all other ages.

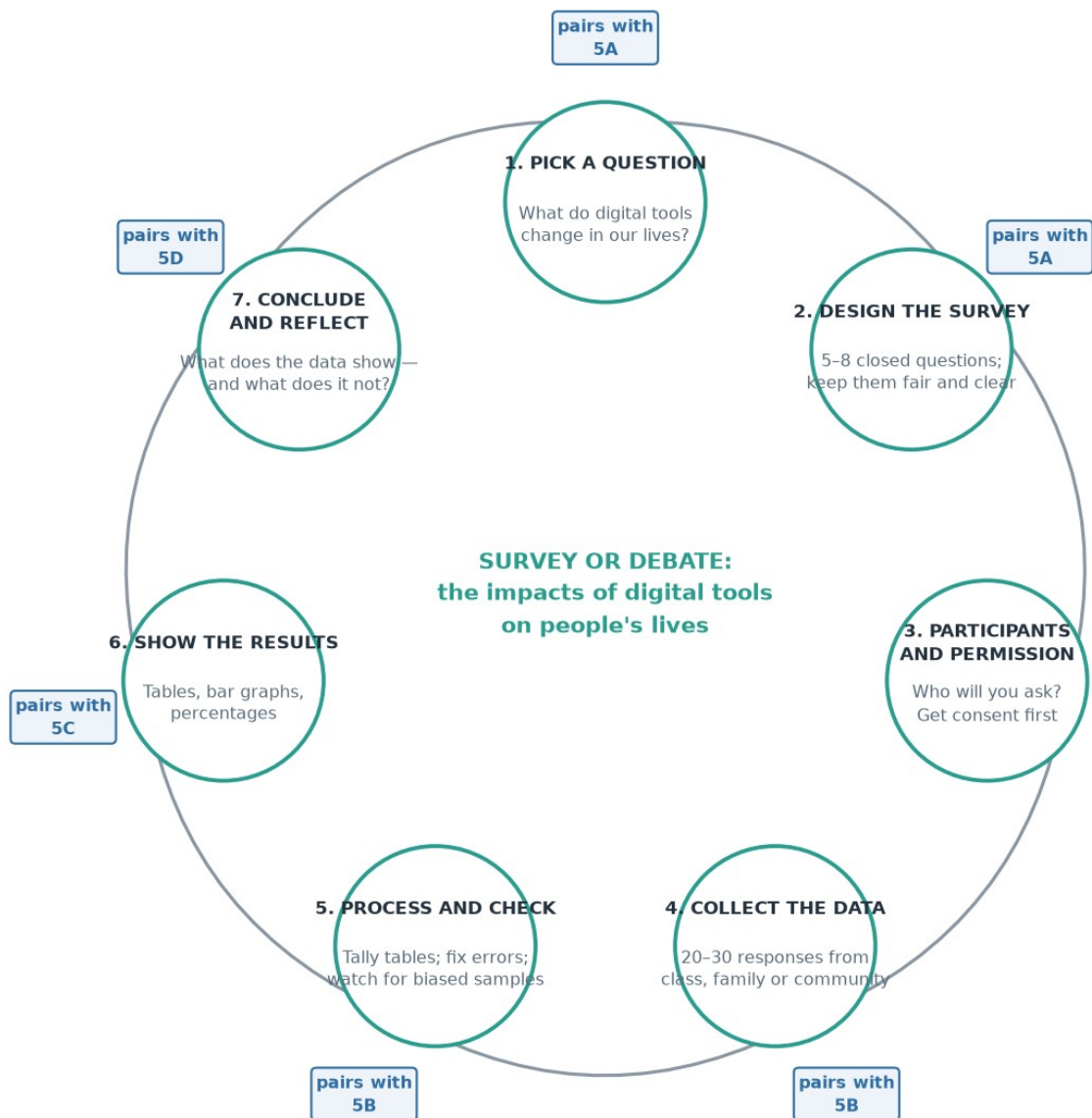
Figure 8. The divide within countries, 2025 (ITU, *Facts and Figures 2025*, retrieved 25 August 2026). The biggest single gap is between urban and rural areas.

The consequences are concrete. Where access is weak, online schooling, telehealth (health care delivered by video or phone), job applications, banking and government services are harder to use — so the divide widens other gaps, such as income and health. Even in well-connected Australia, the divide shows up inside the country: a remote household

may rely on a satellite link that is slower and weather-affected, and rural mobile coverage drops out where cities never lose signal. The divide is therefore both a *between*-places and a *within*-place pattern, exactly as the two figures show.

Part 7 — Inquiry: a survey or debate on digital tools (VC2HG10K05.E06). The section closes with your own investigation of what digital tools have changed in people’s lives. Option A: run a short **survey** in your class, family or community about what digital tools have changed (purchases, entertainment, activities, ideas). Option B: hold a **debate** on the motion that distance and the internet now shape what people buy, watch, do and think. Figure 9 shows the inquiry cycle; the tags mark where this section pairs with the book’s skills sections (5A–5D), which teach the matching techniques.

The inquiry cycle for the section task



Circular diagram of the seven-step inquiry cycle: pick a question, design the survey, participants and permission, collect the data, process and check, show the results, conclude and reflect.

Figure 9. The inquiry cycle for the section task. Keep questions fair and clear, get permission before collecting data, watch for biased samples, and always ask what the data *cannot* show.

Worked examples

Example 1 — scaffolded

Use Figure 3. A T-shirt sold in a Melbourne shop began as cotton grown in the Namoi Valley near Narrabri, NSW. Trace its supply chain and explain the transport choices.

Working	Comment
Steps 1–2: the cotton is picked and trucked a short distance to a gin, where fibre is separated from seed and pressed into bales.	Processing sits near the farms: bulky raw material is costly to move, so the first step shortens the truck trips.
Step 3: bales travel by truck and rail to an Australian export port and are loaded into a shipping container.	Sea transport is the cheapest mode per tonne over long distances — this is why the export step uses a ship.
Steps 4–5: the ship carries the fibre to a spinning mill (for example in Vietnam); the yarn moves on to a garment factory (for example in Bangladesh).	Each step locates where that work is done at large scale and lower cost — the chain is global, not local.
Steps 6–7: finished shirts ship to Melbourne, then move by truck to a warehouse, a shop and a home.	The last steps trade cheapness for speed, because the buyer is close by.
At every step, information networks carry orders and tracking data beside the goods.	A supply chain is a transport network <i>and</i> an information network (VC2HG10K05.E02).

So the T-shirt’s journey shows **logistics** at work: cheap sea freight for the long hauls, trucks for the short ones, and information holding the chain together.

Example 2 — unscaffolded

Use Figure 2. Two students each need a morning appointment at a specialist children’s hospital in Melbourne. Student A lives in outer Melbourne, 40 minutes away by car. Student B lives in Mildura. Compare their access to the service, and judge whether air transport changes what Mildura offers its residents.

Student A drives about 40 minutes and is home before lunch. Student B has two options: drive about 540 km (6 hours or more), leaving before dawn and staying the night, or fly for about 1 hour 30 minutes on a direct service, make the appointment and fly home the same day. The hospital is the *same* distance on the map for both students’ families in the sense that it sits in Melbourne; what differs is the time-cost of reaching it, and that cost decides how the service can be used — a same-day visit, a hard trip with a night away, or (with no transport at all) a service effectively out of reach.

Judgement: the flight does not move Mildura closer to Melbourne, but it changes Mildura’s **access** to Melbourne’s services from “a day each way” to “a morning each way”, and it connects Mildura, through Melbourne’s international airport, to services and opportunities on other continents. Access to fast transport therefore changes both how people *use* services and how they *perceive* distance — which is exactly the claim in elaboration VC2HG10K05.E01. Where services are only reachable online (telehealth, online study), digital tools provide a second, cheaper form of the same access.

Practice questions

Scaffolded

Q1. Use Figure 2. (a) Name the two passenger transport options shown between Mildura and Melbourne, with the approximate time for each. (b) Give one service a Mildura resident can use in Melbourne, and explain in one sentence how the flight makes that service easier to use.

Q2. Use Figure 3. (a) State the transport mode used between the export port and the spinning mill. (b) Define **logistics** in your own words. (c) Suggest why the gin is located near the cotton farms rather than at the port.

Q3. Use Figure 4. (a) What is a **cold chain**? (b) A refrigerated tanker breaks down and milk waits 12 hours. Give two likely consequences for the chain.

Q4. Use Figure 5. (a) Describe the difference in spatial distribution between the face-to-face friends and the online contacts. (b) The sketch is labelled “an example sketch, not real data”. What would you need to collect to draw a true version for yourself?

Q5. Use Figure 6. (a) Name the two countries shown and one hub city in each. (b) Give two reasons global business services have clustered in these cities rather than spreading evenly across Asia.

Q6. Use Figures 7 and 8. (a) State the 2025 gap in internet use between urban and rural areas. (b) Which of the three pairs in Figure 8 shows the largest gap? (c) Give one consequence of the divide for a student in a household without reliable internet.

Unscaffolded

Q7. “The internet has removed distance as a barrier to human interaction.” Discuss this claim using at least two figures from this section. Make the strongest case you can for *each* side before giving your own weighed-up view.

Q8. Choose one item you own or use (for example: a football, a phone case, a banana). Sketch its likely supply chain from raw material to you, with at least five steps, at least two named real places, and a transport mode for each move. Mark the step where you think logistics matters most, and justify your choice.

Q9. The ITU reports that 2.2 billion people remained offline in 2025. Explain why the digital divide exists (i) *between* countries and (ii) *within* countries, and give one consequence of each pattern.

Q10. A government has funding for only one project: faster and cheaper regional flights, or free satellite internet for remote households. Choose one project and argue for it, using the ideas of access and interconnection from this section. Refer to at least one figure.

Inquiry task (VC2HG10K05.E06)

Follow the cycle in Figure 9. **Option A — survey:** survey your class, family or community (20–30 responses) on what digital tools have changed about purchases, entertainment, activities or ideas; present one table or graph and a short conclusion that names one weakness of your sample. **Option B — debate:** in pairs, prepare and run a debate on whether distance and the internet now shape what people buy, watch, do and think; each side must use at least one figure from this section. Write 150–200 words reflecting on what your data or debate showed — and what it could not show.

Answers

Q1. (a) Flight, about 1 hour 30 minutes; driving, about 540 km or 6 hours or more (coach also runs). (b) Any service, e.g. a specialist hospital — the flight turns a two-day trip into a same-day trip. **Q2.** (a) Ship (container ship). (b) Logistics = organising the movement of goods: mode, route, speed, cost. (c) Raw cotton is bulky; ginning near the farms keeps heavy loads off the long-haul trucks. **Q3.** (a) A supply chain in which every step is refrigerated so perishable food stays fresh. (b) Milk quality drops or spoils; deliveries arrive late or are cancelled (costs rise). **Q4.** (a) Face-to-face contacts cluster in one suburb; online contacts spread across Australia and overseas. (b) Your own real contact list — e.g. tally where your friends and online contacts live. **Q5.** (a) India (e.g. Bengaluru) and the Philippines (e.g. Manila). (b) Any two: fast undersea cables; shared working hours with clients; large English-speaking, skilled workforces; existing industry clusters. **Q6.** (a) $85\% - 58\% = 27$ percentage points. (b) Urban–rural (27 points; gender 6, age 10). (c) E.g. harder to do online homework, apply for jobs, or use telehealth. **Q7.** Both-sided discussion required (see solution). **Q8.** Chain sketch required (see solution). **Q9.** Between: income, infrastructure and affordability differ between countries. Within: rural coverage, cost and skills differ inside one country. Consequences as in solution. **Q10.** Either choice, argued with access/interconnection ideas (see solution). **Inquiry.** Assessed against the cycle steps in Figure 9.

Fully-worked solutions

Q7. *Case for “distance is dead”:* information moves at network speed — Figure 5 shows one student’s online contacts in every mainland state and five countries, at no extra cost per kilometre; Figure 6 shows whole industries (software, help desks) serving clients on other continents, so even work ignores distance. *Case for “distance still matters”:* Figure 3 shows a T-shirt still crossing oceans by ship for weeks; Figure 8 shows that access to the tools is uneven (urban 85% vs rural 58%), so for the offline, distance and location still decide what information and services can be reached; time zones, laws and language also still cluster by place. *Weighed view:* distance has been erased for *information* for most (not all) people, but remains a real constraint for goods, bodies and the unequal access to the tools themselves.

Q8. Model (football): 1. rubber and leather alternatives produced as raw material in South-East Asia (e.g. Thailand — rubber); 2. shipped to a factory (e.g. Pakistan, Sialkot — a famous football-making city); 3. stitched and quality-checked; 4. container ship to an Australian import port (e.g. Melbourne); 5. truck to a warehouse and sports store; 6. bought by you. Logistics matters most at step 4→5: a ship delay or a missed truck booking leaves shelves empty before a season starts. (Any five-step chain with two named real places and matched modes is acceptable; the justification must name cost, speed or reliability.)

Q9. (i) *Between countries:* building networks is expensive, so low-income countries have fewer cables, towers and reliable power, and devices cost a larger share of income — hence 94% online in high-income countries vs 23% in low-income countries (Figure 7). Consequence: people in low-income countries are far less able to use online services, information and markets. (ii) *Within countries:* even rich countries have gaps — rural areas sit further from exchanges and towers (85% vs 58%, Figure 8), older and poorer households may lack cost or skills. Consequence: a rural or remote student may lose video lessons or telehealth that city users take for granted (in Australia, satellite links help but are slower and weather-affected).

Q10. Model (satellite internet): choose free satellite internet for remote households. *Access:* it gives every remote household same-day access to information and services — schooling, telehealth, banking, job applications — for every person in the house, every day, at near-zero travel time; faster flights help only those who can pay for tickets and only for trips that still take hours. *Interconnection:* it joins remote places to the same information networks as the cities (Figures 5 and 8), attacking the largest gap in Figure 8 (urban–rural). A counter-argument (flights move people and goods that bytes cannot) is real, but for daily life the cheaper, wider-reaching tool is internet access. (The reverse choice scores full marks if argued the same way with access/interconnection and a figure.)

Inquiry task. Check your work against the cycle: a clear question (step 1); 5–8 fair, closed questions or a balanced debate case (steps 1–2); permission and consent obtained (step 3); 20–30 responses or both debate sides heard (step 4); errors and bias checked (step 5); at least one table, graph or structured summary (step 6); a conclusion that states what the evidence shows *and* one weakness — small or biased sample, one suburb only, one age group (step 7).

Sources and figure notes

- **Curriculum:** Victorian Curriculum 2 Geography, Levels 9–10, content description VC2HG10K05 with elaborations VC2HG10K05.E01–VC2HG10K05.E06 (the curriculum sets the scope of this section).
- **ITU:** International Telecommunication Union, *Facts and Figures 2025* — retrieved 25 August 2026 (Figures 7 and 8: shares online by income group, place, gender and age; 2.2 billion offline; 96% of the offline in low- and middle-income countries).
- **DataReportal:** *Digital 2025: Australia*, January 2025 — retrieved 25 August 2026 (Part 4: population 26.8 million; internet users 26.1 million, 97.1%; social media identities 20.9 million, 77.9%).
- **Mildura Airport:** official airport website — retrieved 25 August 2026 (Figure 2: direct services to Melbourne and Sydney; flight time about 1 hour 30 minutes to Melbourne).
- **NASSCOM** (India’s IT industry body), 2024 (Figure 6: industry revenue US\$254 billion, 2023–24 financial year; about 5.4 million direct jobs).
- **IBPAP** (the Philippines’ IT-BPM industry body) — retrieved 25 August 2026 (Figure 6: about US\$40 billion revenue; about 1.9 million workers).
- **Figure notes:** Figure 3 is a typical journey shaped on elaboration VC2HG10K05.E02; the Namoi Valley near Narrabri is one of Australia’s main cotton-growing regions and the export, spinning and garment steps follow the industry’s usual pattern. Figure 4 uses real places (Gippsland dairy region; a large dairy plant at Leongatha; a major supermarket distribution hub at Truganina). Figures 5 and 9 are teaching sketches, not data.

Trade in manufactured goods: how it changes economies, populations and places

Content description: VC2HG10K06

Elaborations:

- .E01 [Asia]
- .E02
- .E03
- .E04 [Sustainability]

Key terms:

- **import / export** — to import is to buy goods from another country; to export is to sell goods to another country.
 - **manufacturing centre** — a place where many factories make goods, often for sale around the world.
 - **demographic** — to do with a population: how many people live in a place, and their ages. A demographic impact is a change to a population.
 - **supply chain** — the full journey of a product: where its materials are dug or grown, where they are processed, where the product is put together, and where it is sold, used and thrown away.
 - **Special Economic Zone (SEZ)** — an area of China where, from 1980, the government trialled lower taxes and simpler rules to attract foreign factories.
 - **refinery** — a plant that turns crude oil into fuels such as petrol and diesel.
 - **smelter** — a plant that uses heat and electricity to turn mined ore into metal.
 - **sustainability** — the idea defined by the World Commission on Environment and Development in 1987 (the Brundtland report): meeting the needs of people today without harming the ability of future generations to meet their own needs. A sustainable choice keeps the environment, the economy and society working into the future.
 - **West Asia** — the curriculum's name for the region many Australians call the Middle East: Saudi Arabia, the United Arab Emirates (UAE), Iraq, Qatar, Kuwait and their neighbours.
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Theory

1. Places that grew fast making things for the world (E01)

International trade in manufactured products is the buying and selling of made goods — phones, clothes, cars, fuel — across borders. When a place wins a share of the world market, factories open, jobs appear, and people move in. That changes both the economy (jobs, income, what the place makes and sells) and the demographics (how many people live there, and how old they are).

Shenzhen, China. In 1980 Shenzhen was a fishing town of about 30,000 people. In May 1980 it was declared a Special Economic Zone, and factories making electronics, toys, clothes and furniture for export grew up almost from nothing. Migrant workers, mostly young adults, poured in. By the 2020 census Shenzhen had 17,560,000 residents — one of the fastest growth stories of any city in the world.

Dongguan, China, a nearby factory city making phones and computers, grew from 8,220,237 people (2010 census) to 10,466,625 (2020 census).

Population growth of two manufacturing centres in the Pearl River Delta, China

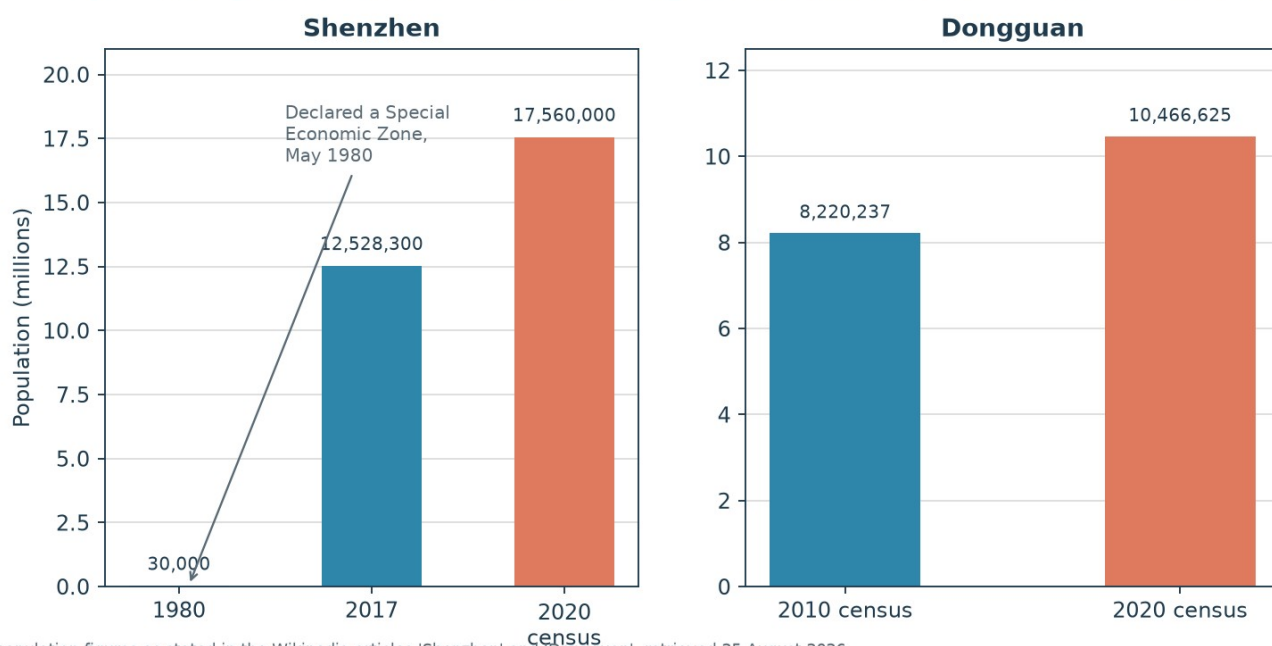
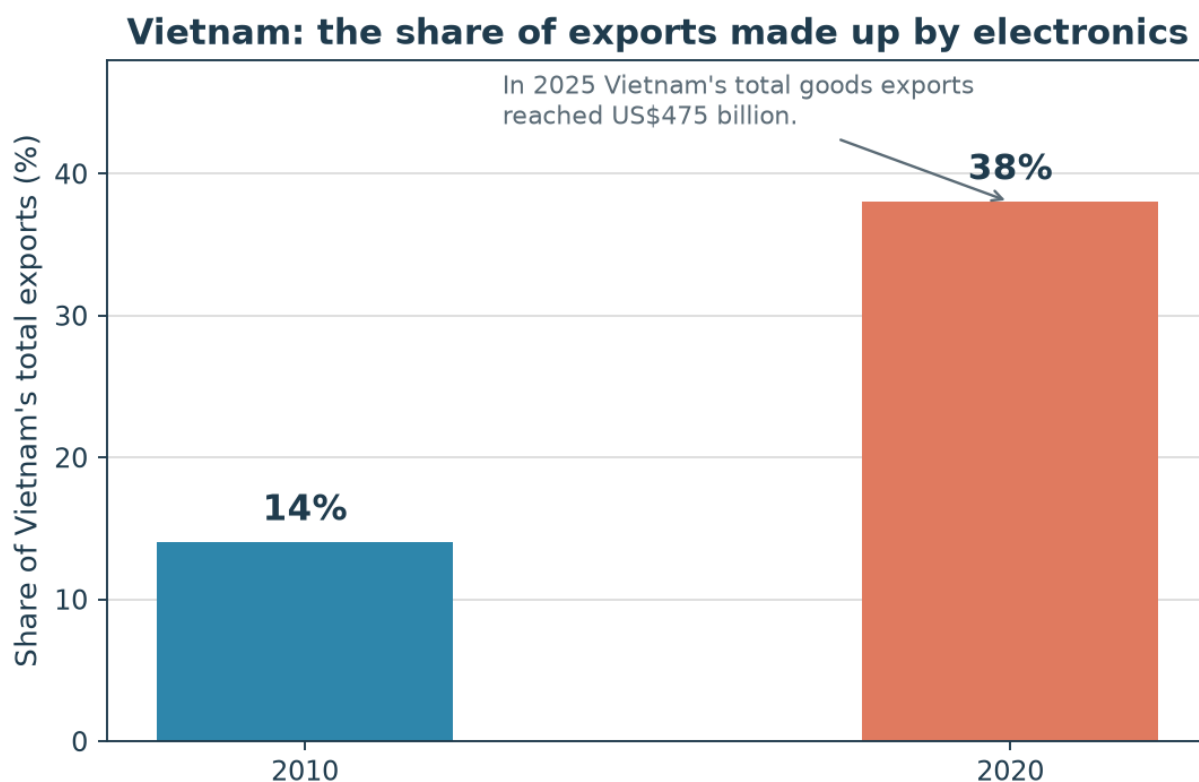


Figure 1. Population growth of two manufacturing centres in southern China.

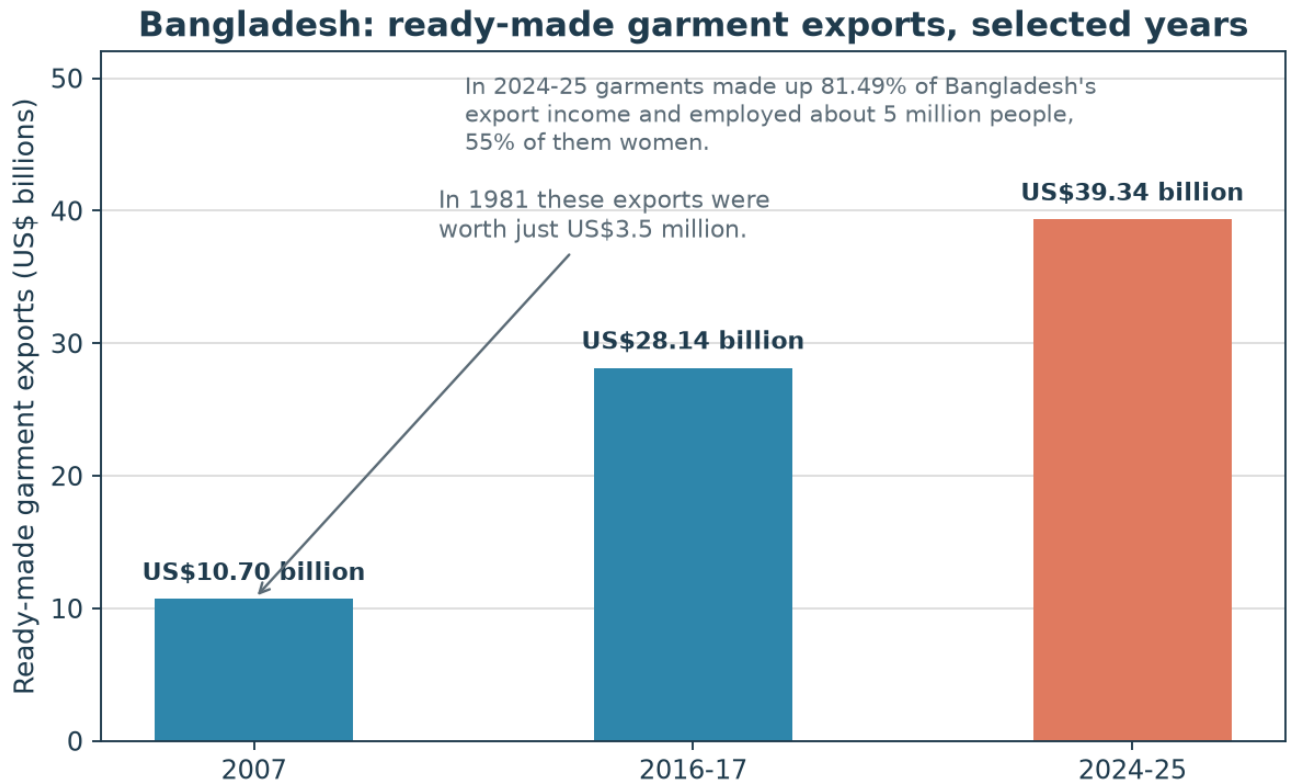
Vietnam. Vietnam has more recently become a maker of electronics for the world market. Phones and computers went from 14% of Vietnam's exports in 2010 to 38% in 2020, and in 2025 the country's total goods exports reached US\$475 billion. Factory work has pulled millions of workers out of farming villages and into cities.



Source: figures as stated in the Wikipedia article 'Economy of Vietnam', retrieved 25 August 2026.

Figure 2. The rising share of electronics in Vietnam's exports.

Bangladesh. In Bangladesh the growth industry is ready-made garments — shirts, pants and jumpers for brands sold in Europe and North America. Garment exports grew from US\$10.70 billion in 2007 to US\$39.34 billion in 2024–25, and in 2024–25 they made up 81.49% of the country's export income. The industry employs about 5 million people, 55% of them women. That is a social and demographic change as well as an economic one: for the first time, large numbers of young women moved to cities such as Dhaka for paid work.



Source: figures as stated in the Wikipedia article 'Textile industry in Bangladesh', retrieved 25 August 2026. FY = financial year.

Figure 3. Growth of Bangladesh's ready-made garment exports.

Outside Asia: Monterrey, Mexico. Not every fast-growing manufacturing centre is in Asia. Monterrey, in northern Mexico, makes steel, cement, glass, car parts and beer, close to the huge United States market. The city had 1,142,194 people in 2020 (about 5,347,000 in the wider urban area), and in March 2023 Tesla chose Monterrey for a new electric-car factory — one more manufacturing centre growing to supply a world market.

2. Imports of manufactured products and Australian places (E02)

Australia sits at the other end of this trade. Most of the manufactured goods Australians buy arrive by ship and plane. In 2024 Australia's goods imports totalled A\$614.1 billion. The single biggest source was China (18.8%), ahead of the United States (15.2%), Japan (5.2%), South Korea (4.2%) and Thailand (3.9%).

Australia's goods trade partners, 2024 (imports totalled A\$614.1 billion; exports A\$644.4 billion)



Source: shares as stated in the Wikipedia article 'Economy of Australia', retrieved 25 August 2026.

Figure 4. Australia's goods trade partners, 2024.

Cheap imports give shoppers lower prices and more choice. They also mean Australian factories must compete with factories overseas — and often lose. The clearest Australian case is the car industry. Australia made almost half a million cars a year in the 1970s; as imported cars took over the market, production slid, and the last three plants (Ford, Toyota, Holden) closed in 2016–17. The last plant, Holden’s at Elizabeth in South Australia, shut on 20 October 2017. Since that day, every new car sold in Australia has been an import.

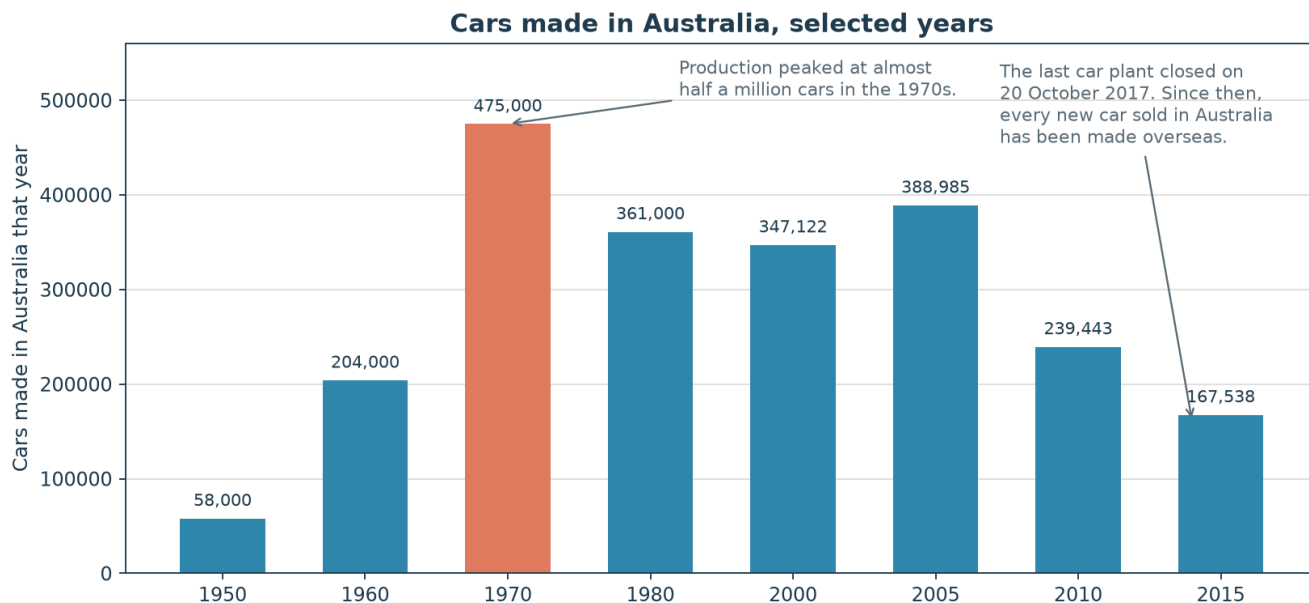
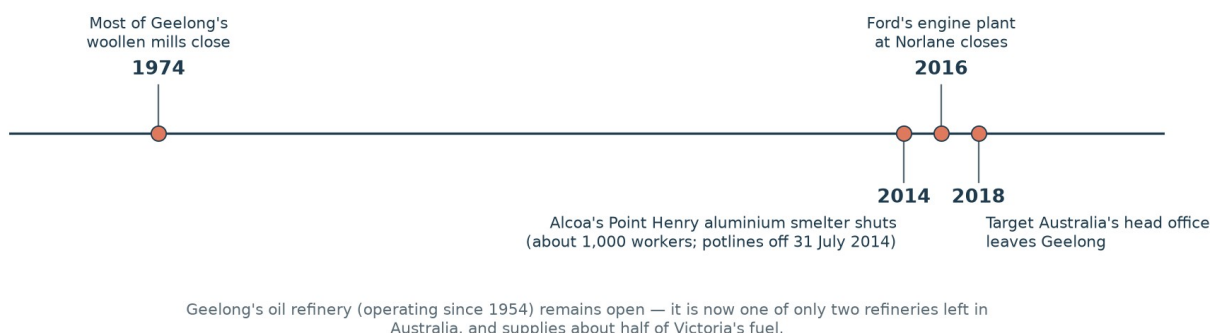


Figure 5. Cars made in Australia, selected years.

Geelong, Victoria shows what that kind of change does to one city. Geelong was one of Australia’s great factory cities — wool mills, a car plant, an aluminium smelter, an oil refinery. Over four decades the woollen mills shut (1974), Alcoa’s Point Henry aluminium smelter shut (potlines switched off on 31 July 2014, about 1,000 workers), Ford’s Norlane plant shut (2016), and Target moved its head office to Melbourne (2018). Thousands of skilled workers lost their jobs, and suburbs built around the plants, such as Norlane, felt the loss for years. Yet Geelong’s population kept growing (282,809 by 2023) as the city rebuilt itself around other work — and the Viva Energy oil refinery at Geelong is still one of only two refineries left in Australia. The impacts of imports on a place are real and uneven: sharp for the workers and suburbs who lose, spread thinly across the shoppers who gain.

Major employer changes in Geelong, Victoria, 1974-2018



Source: Wikipedia articles 'Geelong' and 'Point Henry Smelter', retrieved 25 August 2026.

Figure 6. Four decades of change in Geelong’s manufacturing.

Two fair views of the same change. Geographers disagree about how to weigh this up, and each view has a strong case:

- **Imports are good for Australia on balance.** Cheap cars, phones and clothes lift living standards, most of all for lower-income households. Money not spent on expensive Australian-made goods is spent in other parts of

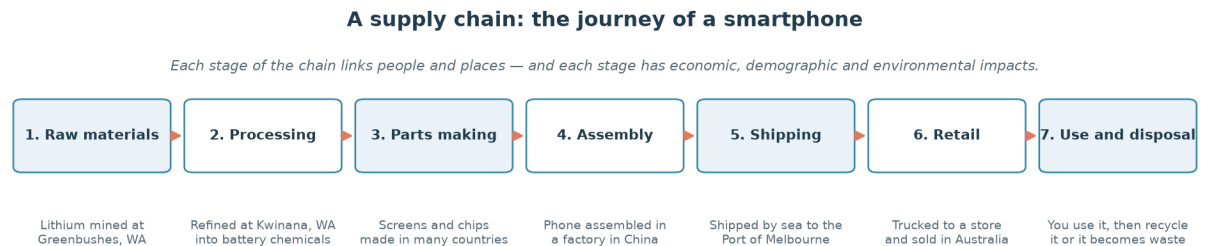
the economy, and workers move into work Australia is genuinely good at — mining, farming, education, health and other services.

- **Imports carry costs Australia should not ignore.** A country that makes none of its own cars, and refines little of its own fuel, depends on other countries for things it cannot do without. The benefits of cheap imports are spread thinly across millions of shoppers, while the costs land hard on particular towns, workers and suburbs.

Both views rest on real evidence from this section. In geography you are marked on the quality of your reasoning, not on which side you pick.

3. The places and people behind the products (E03)

Every manufactured product hides a supply chain of places. Take a mobile phone or an electric-car battery:

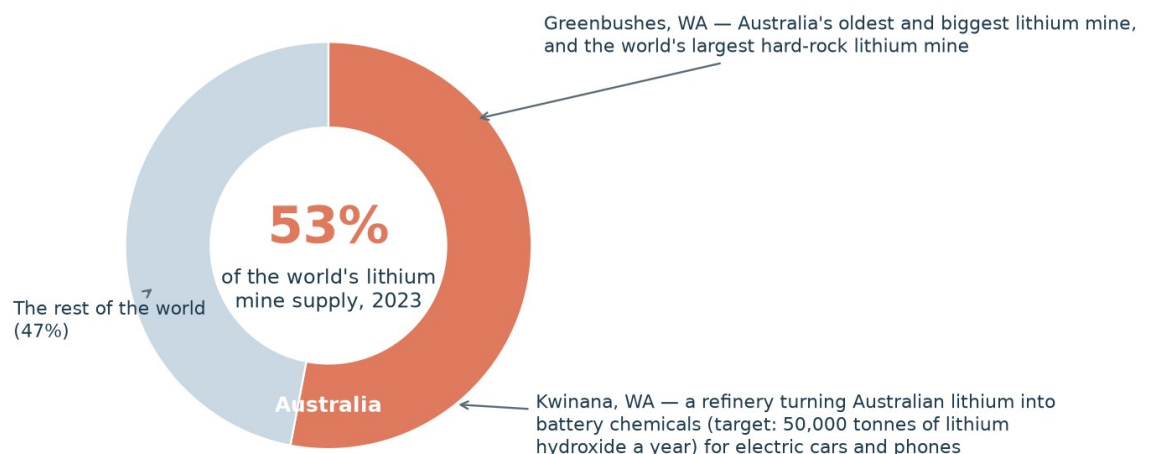


Model drawn by ClassBasics. Place names and lithium facts from the Wikipedia article 'Lithium mining in Australia', retrieved 25 August 2026.

Figure 7. One supply chain: from a Western Australian mine to an Australian shop.

Australia sits at the start of many of these chains. In 2023, Australia mined 53% of the world's lithium — the metal used in phone and car batteries — mostly from hard-rock mines such as Greenbushes in Western Australia, the largest hard-rock lithium mine in the world. At Kwinana, near Perth, new refineries turn Australian lithium into battery chemicals.

Australia digs up more than half the world's lithium



Source: figures as stated in the Wikipedia article 'Lithium mining in Australia', retrieved 25 August 2026.

Figure 8. Australia's share of world lithium mine supply, 2023.

The impacts of this trade differ from place to place along the chain (E03):

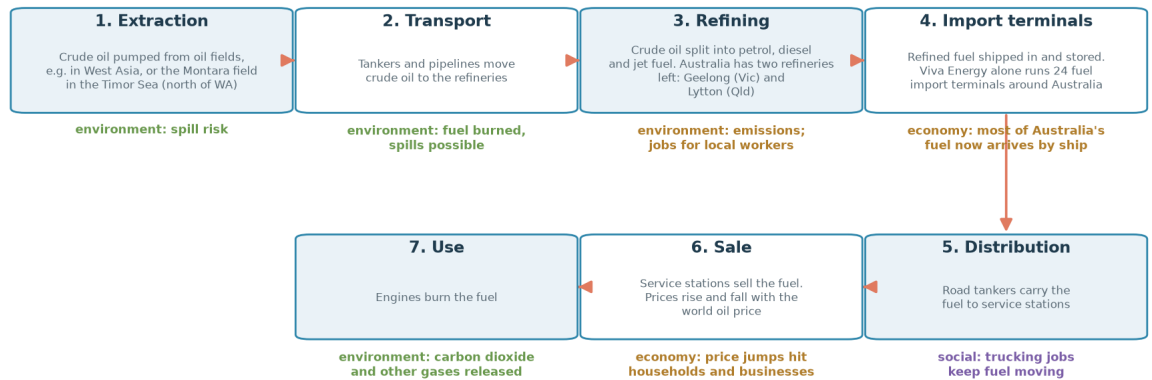
- **Economic:** mining and processing bring export income, jobs and investment to places like Greenbushes and Kwinana; garment factories do the same in Bangladesh.

- **Social:** mining towns grow quickly; in Bangladesh about 5 million workers, most of them women, depend on garment work; factory work pulled young migrants into Shenzhen and Dongguan.
- **Environmental:** digging ore uses water and energy, leaves waste rock, and needs careful repair of the mined land afterwards; processing plants and factories add greenhouse gases to the air unless they run on clean power; and products at the end of their life become waste.

4. The global oil supply chain — a sustainability case (E04)

Oil is the world's most traded resource, and its supply chain is a good test of sustainability — meeting the needs of people today without harming the ability of future generations to meet their own needs.

The oil supply chain: from oil field to service station

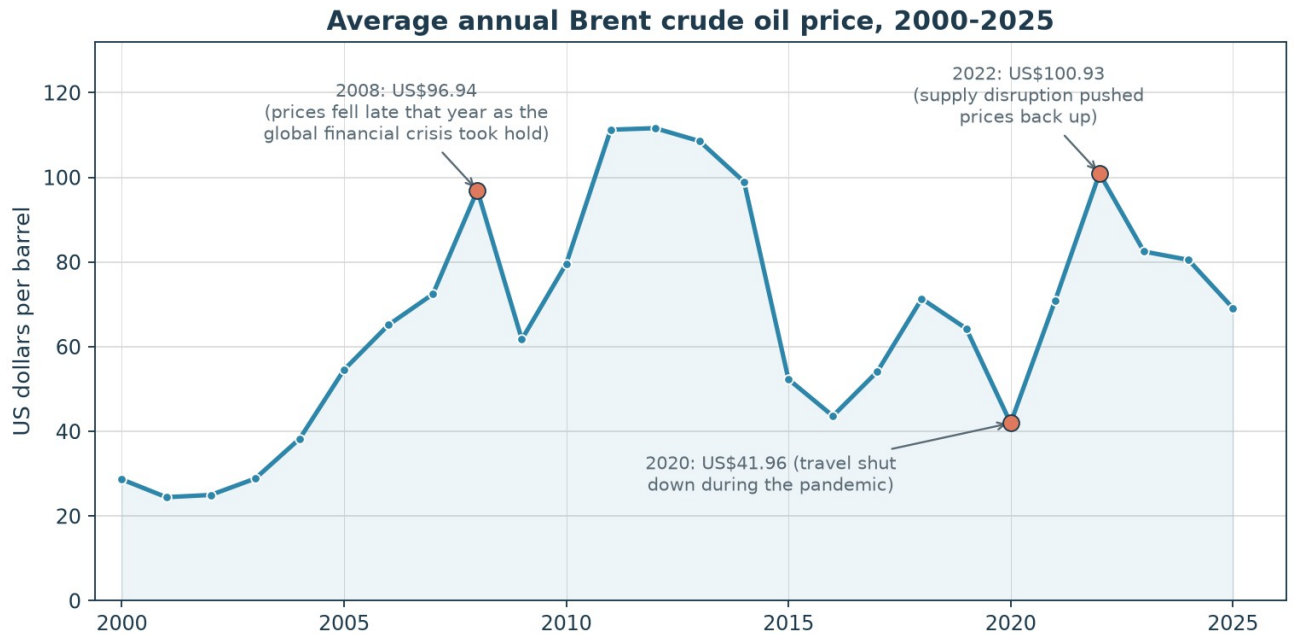


Model drawn by ClassBasics. Place names and fuel-supply facts from sources listed in the section (retrieved 25 August 2026).

Figure 9. The global oil supply chain and its impacts.

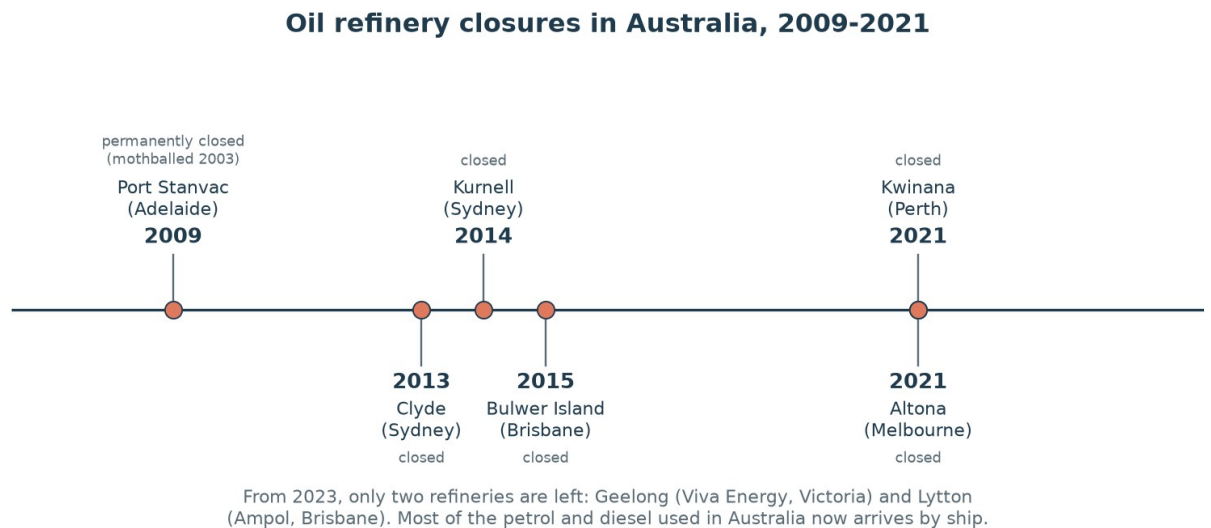
Follow the chain and the impacts stack up at every stage:

- **Extraction.** Offshore drilling can go wrong. At the Montara oil well in the Timor Sea, oil leaked for 74 days (21 August to 3 November 2009); fishers and seaweed farmers in Indonesia — more than 13,000 seaweed farmers and about 7,000 fishers by some counts — reported ruined catches and farms.
- **Processing.** Australia once refined much of its own oil. Between 2009 and 2021 six refineries closed — Port Stanvac (Adelaide, 2009), Clyde (Sydney, 2013), Kurnell (Sydney, 2014), Bulwer Island (Brisbane, 2015), Kwinana (Perth, 2021) and Altona (Melbourne, 2021) — leaving just two: Geelong (Viva Energy) and Lytton (Ampol, Brisbane). Most petrol and diesel now arrives by ship: cheaper fuel for shoppers, but fewer refining jobs and more dependence on fuel made overseas.
- **Sale and use.** World oil prices swing hard, as the Brent crude line shows, and every swing lands on Australian households and businesses. Burning the fuel releases greenhouse gases that drive climate change, and city air pollution harms health.



Source: US Energy Information Administration, annual average Brent spot prices, retrieved 25 August 2026.

Figure 10. Average annual Brent crude oil price, 2000–2025.



Source: closure dates as stated in the Wikipedia article 'Petroleum in Australia', retrieved 25 August 2026.

Figure 11. Oil refinery closures in Australia, 2009–2021.

Managing the impacts sustainably. Places are not just taking these impacts; they are managing them:

- **Australia.** On 17 May 2021 the Australian Government announced the Fuel Security Package, paying the Geelong and Lytton refineries to keep refining to 30 June 2028 (with an option to 2030) so Australia does not lose its last ability to make its own fuel. From 1 July 2025 the New Vehicle Efficiency Standard applies, pushing car makers to sell cleaner, lower-emission cars in Australia and, over time, cutting the country's oil use.
- **West Asia.** The region the curriculum calls West Asia earns much of its income from oil: in Saudi Arabia, oil was about 40% of GDP and about three-quarters of government revenue in 2022. Saudi Arabia's Vision 2030 plan (announced 25 April 2016) aims to build up non-oil industries before the world's oil age winds down. In the UAE, Masdar City (launched in 2006) is a planned city designed to use about 40% less energy than a similar-sized city.

A sustainable oil supply chain is one where environmental, economic and social impacts are weighed together — at the well, at the refinery, and at the petrol pump.

Worked examples

Worked example 1 — measuring a demographic impact: Shenzhen's growth (E01).

Question: Using Figure 1, describe and measure Shenzhen's population change from 1980 to the 2020 census.

1. **Read the data.** 1980: about 30,000 people. 2020 census: 17,560,000 people.
2. **Measure the change.** $17,560,000 - 30,000 = 17,530,000$ more people over 40 years. That is an average of about $17,530,000 \div 40 \approx 438,000$ extra people a year — a city the size of Geelong arriving every single year.
3. **Put it in proportion.** $17,560,000 \div 30,000 \approx 585$ — about 585 times the 1980 population.
4. **Interpret (the geography).** This is a demographic impact of world trade in manufactured goods: world-market factory jobs pulled in young migrant workers, so the city grew faster and younger than it ever could have from births alone.

Worked example 2 — measuring Australia's imports from China (E02).

Question: In 2024, about how much did Australia spend on goods imported from China?

1. **Read the data (Figure 4).** Total goods imports: A\$614.1 billion. China's share: 18.8%.
 2. **Calculate.** $18.8\% \text{ of A\$614.1 billion} = 0.188 \times 614.1 \approx \text{A\$115.5 billion}$.
 3. **Sense-check.** The top five sources together make up $18.8 + 15.2 + 5.2 + 4.2 + 3.9 = 47.3\%$ — less than half. Australia's imports come from many countries, with China clearly the largest single source.
 4. **Interpret.** More than A\$115 billion of goods flowing in from one partner shows how much Australian households and businesses depend on trade in manufactured products — and why changes to that trade are felt in Australian places.
-

Practice questions

Scaffolded

Q1. (E01) Use Figure 1. (a) Read Dongguan's population from the 2010 and 2020 censuses. (b) Calculate the increase. (c) In one sentence, say why a factory city like Dongguan gains people.

Q2. (E01) Use Figure 2. (a) By how many percentage points did the electronics share of Vietnam's exports rise between 2010 and 2020? (b) What does that rise suggest about factory work and cities in Vietnam?

Q3. (E01, E03) Use Figure 3. (a) About how many times bigger were Bangladesh's garment exports in 2024–25 than in 2007? (b) Name one social or demographic impact of the garment industry in Bangladesh, and one fact from the figure or text that supports it.

Q4. (E02) Use Figure 4. (a) Name Australia's biggest source of goods imports and its share. (b) Add the shares of the top five import sources. (c) What does that total tell you about how spread out Australia's imports are?

Q5. (E02) Use Figure 6. (a) List two manufacturing closures in Geelong between 2014 and 2016. (b) Choose one of them and describe one impact on the people of Geelong.

Q6. (E03) Use Figures 7 and 8. (a) Name the two Western Australian places in the battery supply chain and say what happens at each. (b) Give one economic and one environmental impact of lithium mining and processing in Australia.

Un scaffolded

Q7. (E02) "Since 20 October 2017, every new car sold in Australia has been made overseas." Use Figure 5 and either Geelong or Elizabeth (Adelaide) to explain one economic and one demographic impact of this change on an Australian place.

Q8. (E03) Choose ONE place from this section: Greenbushes, Kwinana, a garment factory city in Bangladesh, or Shenzhen. Explain the impacts of mining or manufacturing there on (i) people, (ii) the place, and (iii) the environment.

Q9. (E04) Use Figures 10 and 11. Explain two ways the global oil supply chain has affected Australian households or businesses since 2009.

Q10. (E02, E04) The two views in the box in part 2 are both reasonable. Write the strongest case you can for EACH view, using at least one piece of evidence from this section on each side. Then say which case you find more convincing, and why. (You are marked on the fairness and logic of your reasoning, not on the side you choose.)

Inquiry task

Map the chain of one product, and weigh up one impact.

1. Choose one manufactured product you own or use (phone, laptop, clothes, sneakers, or a car in your family).
 2. Using Figure 4 and the figures in this section as your starting data, build a supply-chain flow chart like Figure 7 with at least four stages: materials extracted → processed → assembled → sold (→ recycled or wasted). Label a real, named country or place at each stage; where you are unsure, say so and give your best evidence-based guess.
 3. Pick ONE stage of your chain. Using one dated, named source (for example a news article or a government page), identify one environmental, economic or social impact of that stage on a real place.
 4. Present your chain and your impact as a one-page report or poster, ending with one suggestion for managing that impact more sustainably — using the 1987 Brundtland idea of sustainability to back up your suggestion.
-

Answers

Q1. (a) 8,220,237 (2010); 10,466,625 (2020). (b) $10,466,625 - 8,220,237 = 2,246,388$ more people. (c) Any valid link, e.g. factory jobs making goods for the world market pulled migrant workers into the city.

Q2. (a) $38 - 14 = 24$ percentage points. (b) Any valid inference, e.g. electronics factories grew and pulled workers into cities; making goods for export became more important to Vietnam's economy.

Q3. (a) $39.34 \div 10.70 \approx 3.7$ times bigger. (b) E.g. large numbers of young women moved to cities for paid factory work — supported by “about 5 million workers, 55% of them women”.

Q4. (a) China, 18.8%. (b) $18.8 + 15.2 + 5.2 + 4.2 + 3.9 = 47.3\%$. (c) The top five together are less than half of imports, so Australia buys from a wide spread of countries (other countries = 52.7%).

Q5. (a) Alcoa's Point Henry aluminium smelter (2014) and Ford's Norlane car plant (2016). (b) Any valid impact, e.g. about 1,000 smelter workers lost their jobs; skilled workers had to retrain or move; suburbs near the plants lost spending and confidence.

Q6. (a) Greenbushes — lithium ore is mined (the largest hard-rock lithium mine in the world); Kwinana — lithium is processed into battery chemicals. (b) Economic: export income, jobs, investment. Environmental: water and energy use, waste rock, repair of mined land, or greenhouse gases from processing.

Q7. Economic: loss of manufacturing jobs and income in places like Geelong and Elizabeth; retraining and new industries over time; cheaper cars for buyers. Demographic: workers and families moved or travelled to other places for work; Geelong's population kept growing only as new work appeared (282,809 by 2023). Any well-reasoned pair with real place detail.

Q8. Answers vary; must cover people (jobs, income, migration), the place (growth of towns and cities, roads and ports, dependence on one industry), and the environment (water and energy use, waste rock, greenhouse gases, repair of mined land, or factory pollution). E.g. Greenbushes: jobs and income for the region; town growth and heavy truck traffic; water use, waste rock and repair of mined ground.

Q9. Any two well-explained, e.g. (1) price swings (Figure 10: US\$41.96 in 2020 to US\$100.93 in 2022) raise or lower fuel costs for households and for businesses that drive, fly or freight; (2) refinery closures (Figure 11) mean most fuel arrives by ship — cheaper to run, but more dependence on overseas refining and the loss of refining jobs in places like Altona and Kwinana.

Q10. Answers vary. A good answer argues both sides well: FOR imports — cheaper goods lift living standards (most for lower-income households), more choice, and workers move into work Australia does well (mining, services); AGAINST — dependence on other countries for essentials (cars, fuel), and concentrated job losses in factory towns (Geelong, Elizabeth) while the benefits spread thinly. The stated choice must follow from the evidence; reasoning is marked, not the conclusion.

Inquiry task. Check for: at least four named stages with real places; one dated, named source for the chosen stage; one clearly identified environmental, economic or social impact; one sustainability suggestion tied to the 1987 Brundtland definition.

Sources for this section (retrieved 25 August 2026): Wikipedia articles *Shenzhen*, *Dongguan*, *Economy of Vietnam*, *Textile industry in Bangladesh*, *Monterrey*, *Economy of Australia*, *Automotive industry in Australia*, *Lithium mining in Australia*, *Petroleum in Australia*, *Viva Energy*, *Montara oil spill*, *Saudi Vision 2030*, *Masdar City* and *New Vehicle Efficiency Standard*; US Energy Information Administration, annual average Brent spot prices; World Commission on Environment and Development, *Our Common Future* (1987).

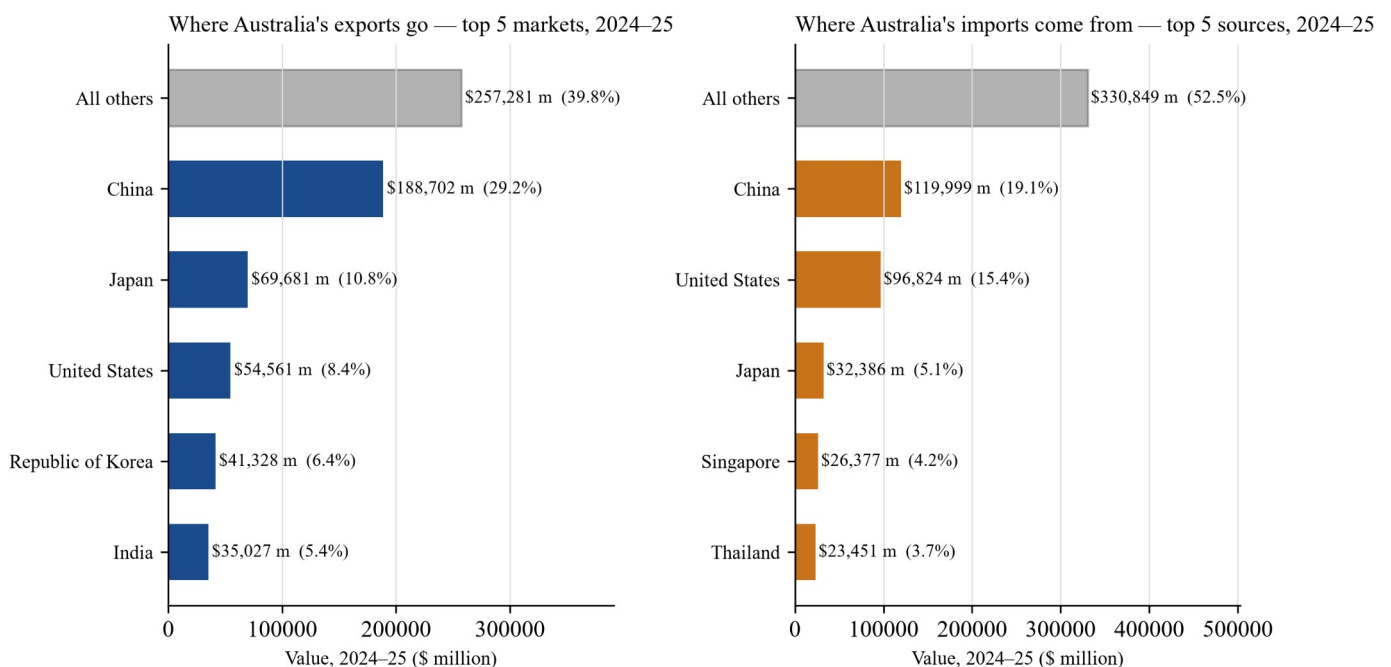
Trade links between countries: sustainability and embodied carbon

Theory

Trade is the buying and selling of things between places. Things that leave a country are **exports**; things that arrive are **imports**. Traded things come in two kinds: **goods** (physical things you can touch, such as iron ore, beef, wheat, cars and phones) and **services** (things done for people, such as education, travel, banking and freight). When two places trade a lot, they are **interconnected**: a change in one place — a price, a drought, a factory closing, a new law — is felt in the other.

Why does trade happen? No country can make everything it wants, cheaply, on its own. Places have different resources, climates and skills. Australia has large supplies of iron ore, coal, natural gas and farmland; equatorial countries can grow oil palm and cocoa; countries such as China and the United States have huge manufacturing and technology industries. So each place focuses on what it does well and trades the rest. Those trades tie places together at every scale — a single farm or smelter (local), a whole country (national), a region such as the Asia-Pacific (regional), and the planet (global).

The figure below shows Australia's trade connections in 2024–25.

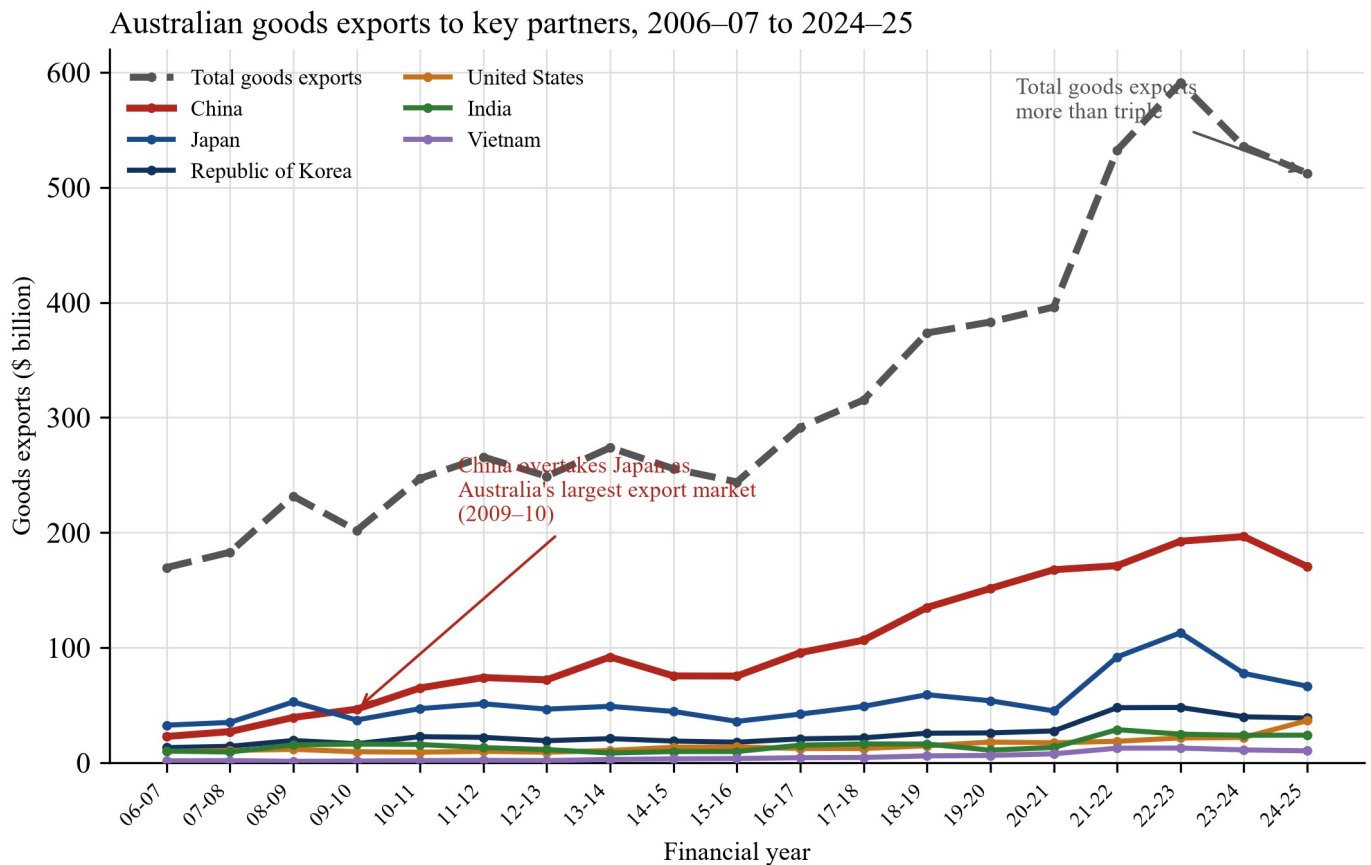


Two bar charts of Australia's goods and services trade in 2024–25, showing the five biggest export markets led by China at 29.2 per cent and the five biggest import sources led by China at 19.1 per cent, with all other partners grouped

China is both Australia's biggest market and its biggest source — a two-way interconnection. Services matter too: in 2024–25, education travel (overseas students studying in Australia) was worth \$53,571 m of exports, while personal travel by Australians overseas was a \$65,135 m import.

Interconnections change over time (E02)

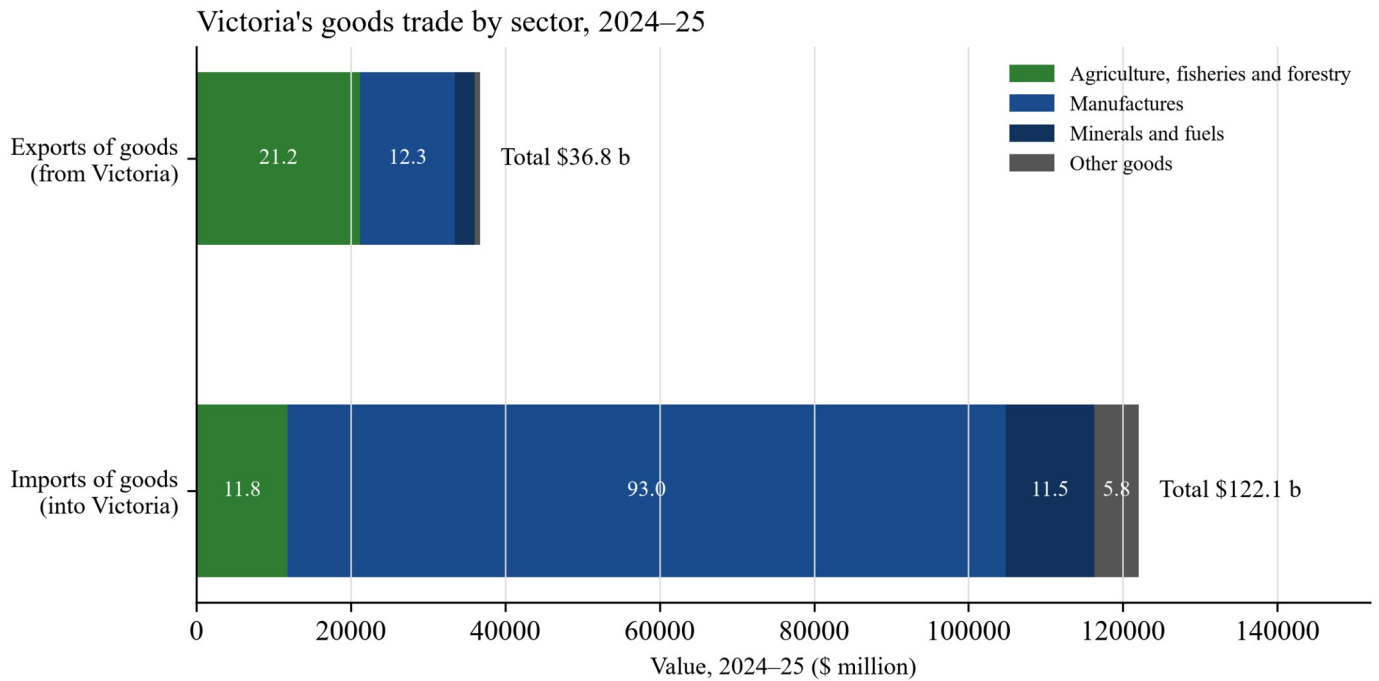
Trade connections are not fixed. The next figure tracks Australia's goods exports to six key partners across nineteen financial years.



Line chart of Australian goods exports to China, Japan, Republic of Korea, United States, India and Vietnam from 2006–07 to 2024–25, with the total, showing China overtaking Japan in 2009–10 and total exports more than tripling

In 2006–07, **Japan** was Australia’s largest goods market (\$32.6 b) and China was second (\$22.8 b). In **2009–10 China overtook Japan** (\$46.5 b against \$37.1 b), and by 2024–25 China took \$170.4 b — about a third of all Australian goods exports. Total goods exports more than tripled, from \$169.6 b to \$512.3 b. **Why?** China’s factories and cities grew quickly and needed Australian iron ore, coal, natural gas and food. Newer links grew too: goods exports to Vietnam rose from \$1.6 b to \$10.3 b, and to the United States from \$9.8 b to \$36.6 b. That is change in interconnection at the national and global scale.

The same story can be seen closer to home. The next figure shows the trade of **Victoria**, one Australian state, in 2024–25.



Stacked bar chart of Victoria's goods exports and imports by sector in 2024–25, showing exports led by agriculture, fisheries and forestry at \$21.2 b and imports led by manufactures at \$93.0 b, with totals of \$36.8 b and \$122.1 b

Victoria's exports are mostly farm and food products (\$21.2 b of the \$36.8 b total — beef alone was \$3.7 b), while its imports are mostly manufactured goods (\$93.0 b of \$122.1 b, including \$10.8 b of passenger vehicles). Victoria's top markets were the United States (\$6.9 b) and China (\$6.0 b); most of its imports came from China (\$34.8 b).

At the **local** scale, a single workplace can be tied to the world. The aluminium smelter at **Portland**, in south-western Victoria, produced nearly 20 per cent of Australia's aluminium in 2025. Its owner, Alcoa, reports that its Australian operations produce about 300,000 tonnes of aluminium a year from about 7.5 million tonnes of alumina and about 28 million tonnes of bauxite, and that it is one of Australia's leading exporters, at about \$5.3 b a year. When world prices for aluminium rise or fall, a local town in Victoria feels it — that is interconnection at the local scale.

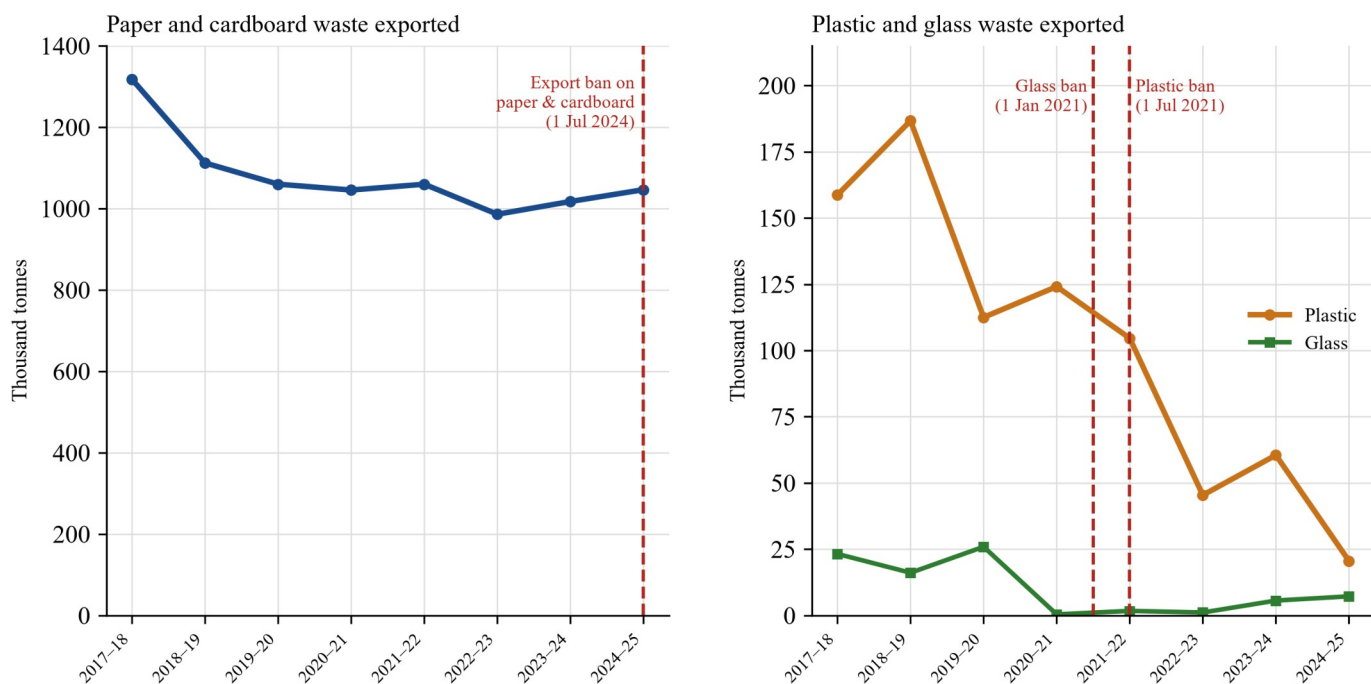
The life of an imported good (E03)

Every good you buy has a life that touches several places:

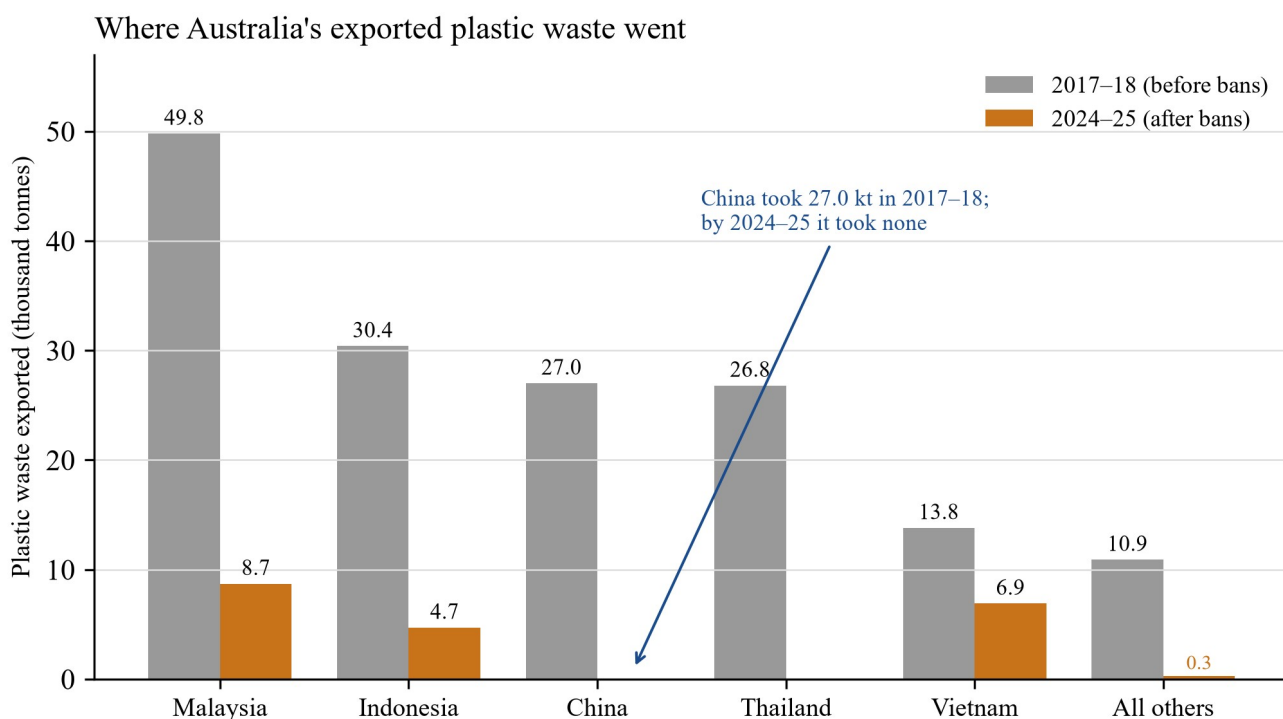
1. **The place that produces the raw material** — where the ore is mined, the forest is logged or the crop is grown.
2. **The place that manufactures the product** — where it is made, often in a factory overseas.
3. **The place that receives the wastes** — where the packaging and the worn-out product end up, at the end of the product's life.

Each of these places carries an environmental impact. Mining and growing can clear land and use large amounts of water. Manufacturing uses energy and can pollute air and waterways. And the end-of-life waste must go somewhere — to landfill, to an incinerator, or onto a ship.

Australia is part of that last trade too: for many years it exported its own paper, plastic and glass waste to be reprocessed overseas. The next two figures show what happened to that trade.



Two line charts of Australia's waste exports from 2017–18 to 2024–25: paper and cardboard near 1,000–1,300 thousand tonnes with the 1 July 2024 export ban marked, and plastic falling from 186.7 to 20.6 thousand tonnes and glass from 25.9 to 7.2 thousand tonnes with the 1 January 2021 and 1 July 2021 bans marked



Grouped bar chart comparing where Australia's exported plastic waste went in 2017–18 and 2024–25: Malaysia 49.8 to 8.7, Indonesia 30.4 to 4.7, China 27.0 to none, Thailand 26.8 to none, Vietnam 13.8 to 6.9 thousand tonnes

From **2018**, China — until then a major buyer of the world's waste — sharply restricted the waste imports it would accept, under its “National Sword” policy. Much of the waste traded in the region was dirty and hard to reprocess, so in receiving places such as Malaysia and Indonesia some of it was dumped or burned, harming land, water and air. Australia's plastic waste exports fell from 158.7 thousand tonnes (2017–18) to 20.6 thousand tonnes (2024–25); China took 27.0 thousand tonnes in 2017–18 and none by 2024–25.

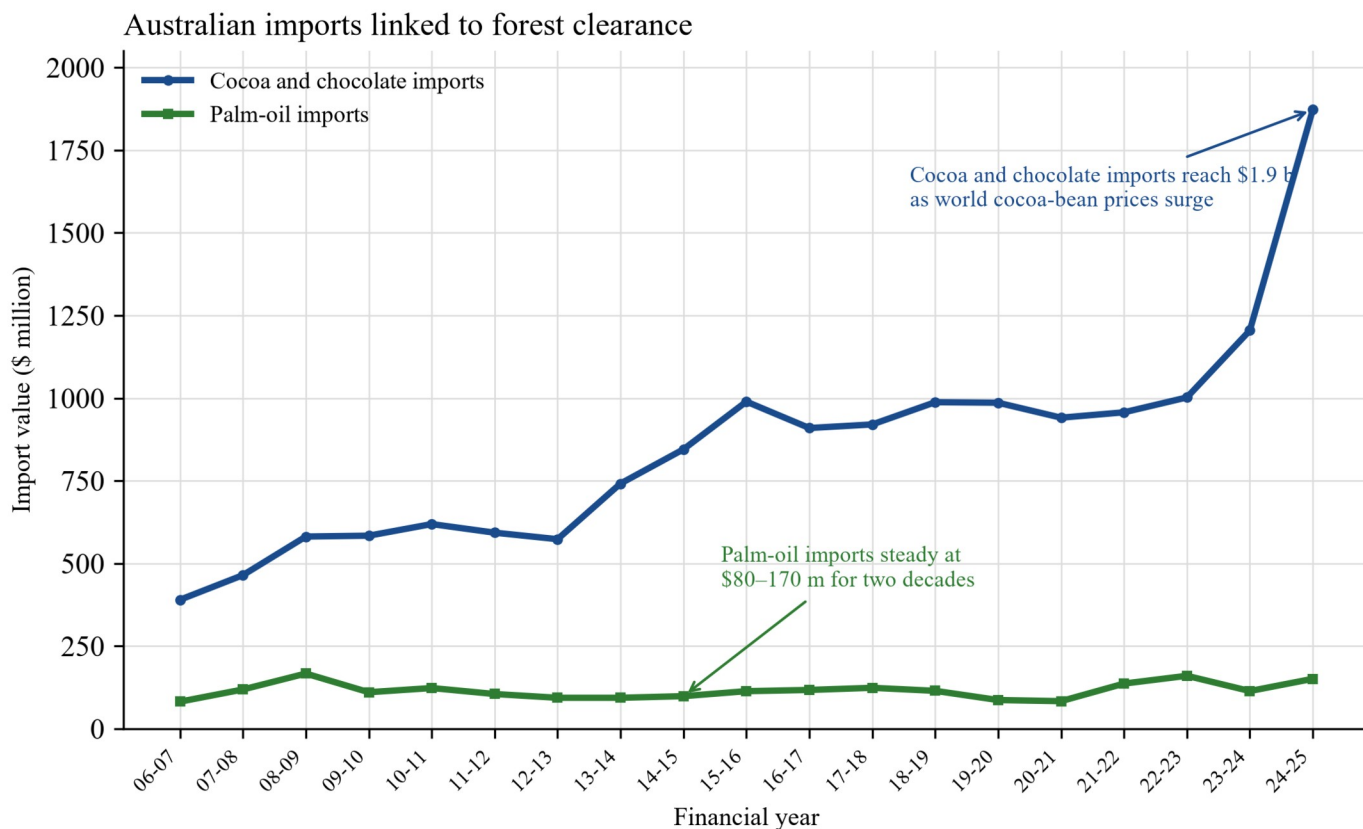
Australia responded. After the 13 March 2020 agreement of Australian governments, the *Recycling and Waste Reduction Act 2020* banned the export of waste glass from 1 January 2021, waste plastic from 1 July 2021, whole tyres from 1 December 2021, and paper and cardboard from 1 July 2024. The effect is visible in the figures: glass

exports dropped from 25.9 to 0.4 thousand tonnes in a single year, and Victoria’s own plastic waste exports fell from 86.8 to 8.6 thousand tonnes. The interconnection changed — and with it, where the environmental impact of our waste falls. Now the job of reprocessing (and its impacts, and its jobs) stays largely in Australia.

The same logic applies to the goods you consume. A phone or a shirt sold in Australia may use ore or cotton from one country, be manufactured in another (using that place’s energy, air and water), and leave its end-of-life waste in a third. The environmental impacts of the goods you import are carried by the places in the chain.

Food trade and biodiversity (E04)

Two everyday foods show the link between trade and **biodiversity** — the variety of living things in a place.



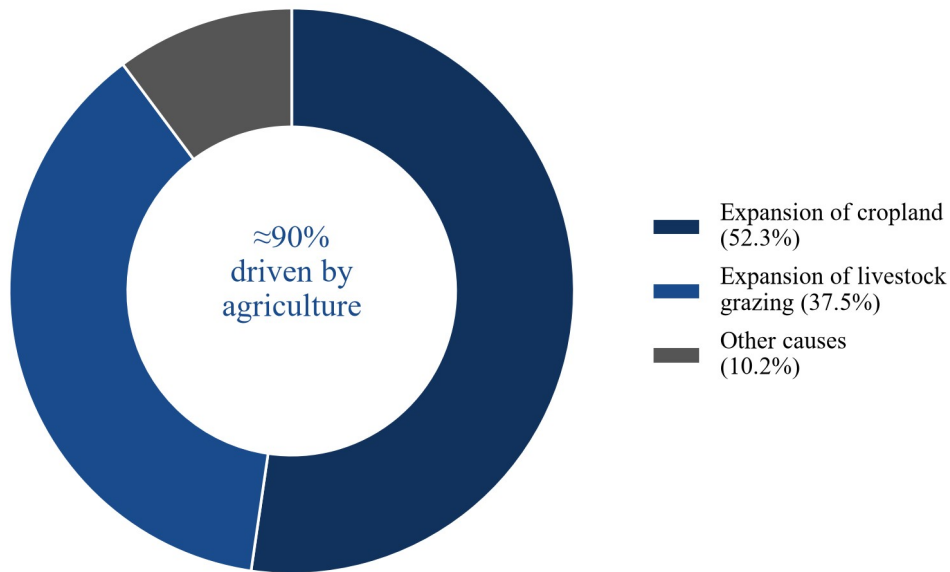
Line chart of Australian imports of cocoa and chocolate and of palm oil from 2006–07 to 2024–25, showing cocoa and chocolate rising from \$390 m to \$1,872 m with a sharp 2024–25 surge, and palm oil steady between \$80 m and \$170 m

Australian imports of cocoa and chocolate rose from \$390.1 m (2006–07) to \$1,872.1 m (2024–25), jumping sharply in the last year as world cocoa-bean prices surged. Palm-oil imports have sat between about \$80 m and \$170 m a year for two decades (\$150.9 m in 2024–25). Palm oil is in margarine, chocolate, biscuits and many packaged foods; cocoa is in chocolate and drinks.

Where do these come from, and what do they do to the places that grow them? About three quarters of the world’s palm oil is produced in Indonesia and Malaysia, and about 68 per cent of the world’s cocoa comes from Cameroon, Côte d’Ivoire and Ghana (FAO, *The State of the World’s Forests* 2022). Interestingly, most of Australia’s cocoa arrives via Malaysia, Singapore and Indonesia (\$325.2 m, \$305.6 m and \$272.1 m in 2024–25), where the beans are processed — only a small share arrives directly from West Africa. The raw material and the manufacturing sit in different places, each carrying part of the impact.

The impact on biodiversity runs through forest clearance. The next figure summarises the FAO’s remote-sensing survey of forest clearance around the world between 2000 and 2018.

What drives global deforestation? (2000–2018)



Donut chart of the drivers of forest clearance around the world from 2000 to 2018: expansion of cropland 52.3 per cent, expansion of livestock grazing 37.5 per cent, other causes 10.2 per cent, with a centre label reading about 90 per cent driven by agriculture

Almost **90 per cent of forest clearance was driven by agriculture** — 52.3 per cent to expand cropland and 37.5 per cent to expand livestock grazing. Oil-palm plantations alone accounted for about 7 per cent of the world's forest clearance, and about three quarters of palm-oil production is traded internationally — so the chocolate and biscuits bought in Australia are linked, through trade, to forest clearance in Sumatra and Borneo. Those forests are the habitat of species such as the orangutan and the Sumatran tiger. For cocoa, the FAO reports that around 2.3 million hectares of forest were cleared in cocoa-growing areas in the late 1990s and 2000s, and that about two million small farms supply most of the world's cocoa; the **Cocoa and Forests Initiative** (from 2017) is one attempt by governments and companies to end that clearance. Indonesia paused new oil-palm permits from September 2019 and later made the pause permanent.

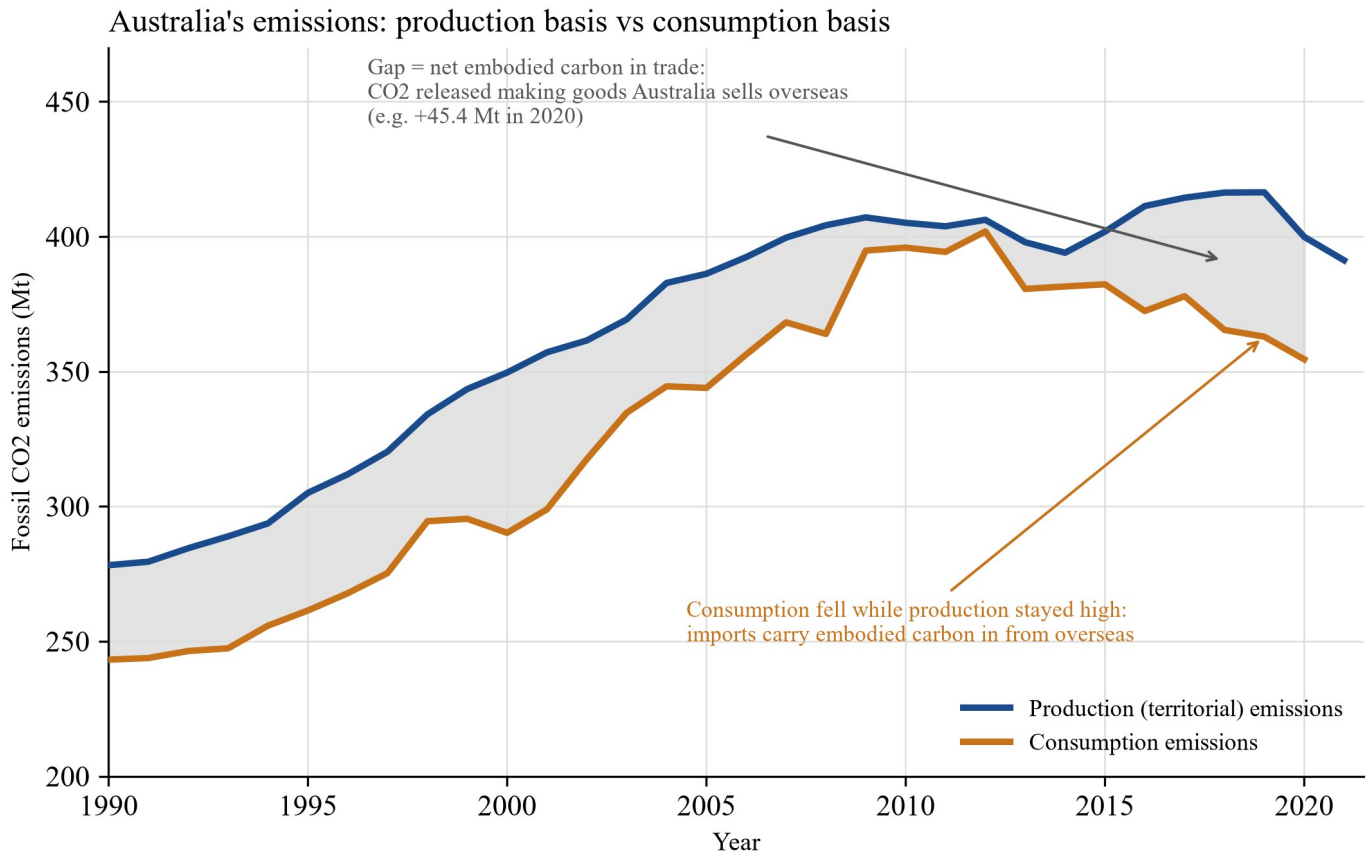
Evaluating means weighing both sides. Trade in these foods brings income and work to millions of farmers in producing countries — cocoa is the livelihood of about two million small farms. Clearing land for crops harms biodiversity, yet banning the trade would remove those livelihoods. Even a boycott can backfire: the WWF argues that boycotting palm oil would shift demand to other oil crops that need far more land to produce the same amount of oil, so the better path is to push for palm oil grown without clearing forests. The impact of food trade on biodiversity is real, and so is the impact of the trade on the people who grow the food.

Embodied carbon: is the gain real, or moved? (E05)

Counting greenhouse gas emissions sounds simple, but trade means there are two honest ways to count a country's emissions (as published by the **Global Carbon Atlas**, from the Global Carbon Budget):

- **Production basis** — the emissions released inside a country's borders (its power stations, factories, farms, cars and mines).
- **Consumption basis** — the emissions released anywhere in the world to make the goods and services a country consumes: the emissions behind imports are added, and the emissions behind exports are taken away.

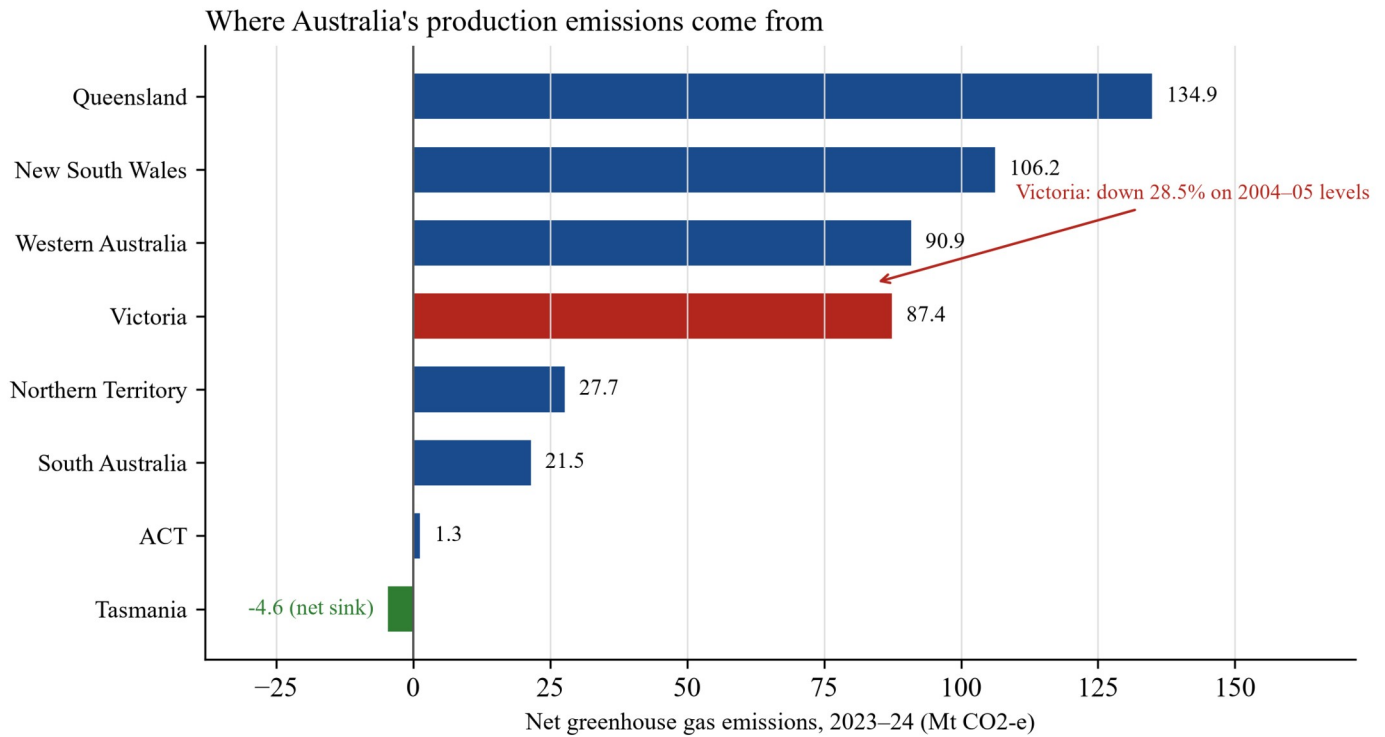
The difference between the two is **embodied carbon** — the carbon dioxide released in growing, mining, making and transporting a traded good, which the good effectively carries with it when it is traded. **Trade in embodied carbon** is the net balance of that carried carbon in a country's imports and exports.



Line chart of Australia's fossil carbon dioxide emissions on a production basis and a consumption basis from 1990 to 2021, with the gap between them shaded and labelled as net embodied carbon in trade, for example plus 45.4 megatonnes in 2020

For Australia, production emissions have been **higher** than consumption emissions in almost every year since 1990 — for example 399.9 Mt against 354.5 Mt in 2020, a gap of **+45.4 Mt**. Australia is a *net exporter* of embodied carbon. That makes sense: Australia digs and processes resource exports — iron ore, alumina, aluminium (smelting uses enormous amounts of electricity), liquefied natural gas — releasing CO2 here so that goods can be consumed in other countries. At the same time Australia imports manufactured goods that carry embodied carbon from the countries that made them. Per person, the two counts are 15.1 t (production, 2021) and 14.3 t (consumption, 2019).

Now compare how countries *claim* sustainability. Australia's official inventory counts emissions on the production basis: to December 2025, national emissions were 458.9 Mt CO2-e, down 24.5 per cent on the June quarter 2005 level. The next figure shows where those production emissions sit within Australia.



Bar chart of net greenhouse gas emissions by Australian state and territory in 2023-24: Queensland 134.9, New South Wales 106.2, Western Australia 90.9, Victoria 87.4 (down 28.5 per cent on 2004-05), Northern Territory 27.7, South Australia 21.5, Australian Capital Territory 1.3, and Tasmania minus 4.6 as a net sink

Victoria's production emissions fell 28.5 per cent on 2004-05 levels, and Tasmania is a **net sink** — its forests and soils remove more greenhouse gas than the state emits. On the production basis, these look like sustainability wins.

But here is the contested question this section ends with: **can a country claim to have improved its environmental sustainability if the "improvement" comes from shifting resource use and production to other countries?** Two positions, each with real force:

- **Position A — the production basis is the right test.** The rules agreed under the United Nations climate treaties (the UNFCCC and the Paris Agreement) count emissions where they are released, because that is what a country's laws can control: its power stations, vehicles and factories. A consumption count needs complex modelling of world supply chains and arrives years late, so it cannot guide year-to-year policy. And shifting production can spread cleaner methods: goods made in an efficient factory overseas may emit less than goods made in an old factory at home.
- **Position B — the consumption basis is the honest test.** The atmosphere does not care where CO₂ is released. If a country closes its factories and simply imports the same goods, its production emissions fall while the global emissions do not — the emissions have moved, not disappeared. This relocation is called **carbon leakage**. On this view, a sustainability claim should be checked against the consumption basis, or it may describe a relocated problem rather than a solved one.

Australia sharpens the debate from both ends. Because Australia *exports* embodied carbon, part of its production emissions serve other countries' consumption — if the world stopped buying Australian coal, gas and ore, Australia's "production" emissions would fall without Australians changing how they live. And because Victoria *imports* manufactured goods, part of any Victorian fall may be production (and its emissions) shifted to places such as China. The strongest sustainability claims are the ones that hold up on **both** accounts — a real gain shows up in production and consumption numbers alike.

Worked examples

Example 1 — scaffolded (E01 and E02)

Question: Using the partners figure and the exports-over-time figure, explain *how* and *why* Australia's interconnections through trade changed between 2006–07 and 2024–25.

Step	What the figures show	What it means for interconnection
1	In 2006–07 Japan was the top goods market (\$32.6 b); China was second (\$22.8 b).	Australia's trade was then centred on the older industrial economies of Asia.
2	In 2009–10 China overtook Japan (\$46.5 b vs \$37.1 b); by 2024–25 China took \$170.4 b, about a third of goods exports.	One partner came to dominate: Australia and China became closely interconnected.
3	Total goods exports more than tripled (\$169.6 b to \$512.3 b); links with Vietnam and the United States also grew.	More places, and bigger flows: interconnection widened and thickened at the national and global scale.
4	Australia's top exports are iron ore (18.0%), coal (11.0%) and natural gas (10.0%).	Why: China's growth needed ore, coal and gas; Australia had them, close by in the Asia–Pacific region. Demand and resources pulled the two places together.

Answer: Between 2006–07 and 2024–25 Australia's trade interconnection shifted from a Japan-led pattern to a China-centred one, and grew more than threefold, because fast-growing Asian demand for Australian resources and food pulled the places together. Change in interconnection is therefore about both *how much* places trade and *which* places matter most.

Example 2 — scaffolded (E05)

Question: Using the production-vs-consumption figure: (a) read Australia's production and consumption emissions for 2020 and calculate the gap; (b) say what the gap means in terms of embodied carbon; (c) discuss whether a fall in production emissions always means improved sustainability.

Step	Working
(a)	Production 2020 = 399.9 Mt; consumption 2020 = 354.5 Mt. Gap = $399.9 - 354.5 = 45.4$ Mt.
(b)	The gap is net embodied carbon in trade: in 2020 the CO ₂ released in Australia to make exports exceeded the CO ₂ released overseas to make Australia's imports by 45.4 Mt. Australia is a net exporter of embodied carbon.
(c)	If a country's production emissions fall because production moved overseas (carbon leakage), its consumption basis will not fall — the gain is moved, not made, and Position B says the claim fails. If the fall comes from cleaner power and real cuts at home, both bases fall — Position A and Position B agree, and the claim holds.

Answer: The 2020 gap of 45.4 Mt shows Australia carrying emissions for other countries' consumption. A fall in production emissions is a genuine sustainability gain only when it reflects real cuts (cleaner energy, better methods) rather than relocated production — which is exactly what comparing the two bases — the idea of embodied carbon in trade — is for.

Putting it together

Trade ties places together at every scale, and those ties change over time. The same ties carry environmental impacts — to the places that supply raw materials, that manufacture goods, that receive wastes, and that lose forest to food crops. And because goods carry embodied carbon, trade decides *where* emissions are counted, which is why sustainability claims must be tested on both the production and the consumption basis.

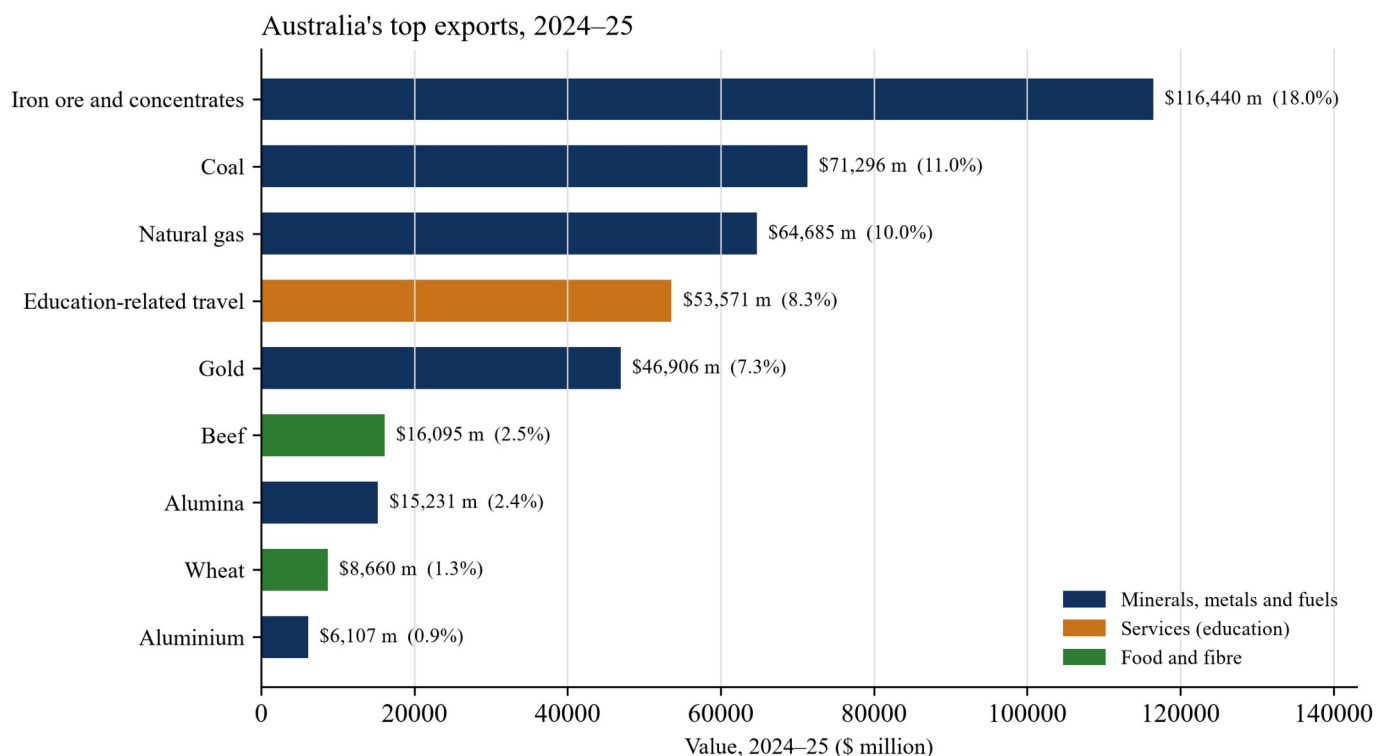
Scale	Interconnection through trade	Change over time	Link to sustainability
Local	Portland smelter tied to world aluminium markets; Victorian farms export beef	Victoria's plastic waste exports fell 86.8 to 8.6 kt after the bans	Impacts and jobs stay or move with the trade
National	Australia exports ore, coal, gas, food; imports manufactures	China overtook Japan in 2009–10; totals tripled	Production emissions higher than consumption: net exporter of embodied carbon
Regional	Asia–Pacific demand pulls Australian resources; waste once flowed to South-East Asia	China's 2018 restrictions rerouted the waste trade	Receiving places carried the waste impact
Global	Cocoa grown in West Africa, processed in South-East Asia, eaten here	Cocoa imports up to \$1.9 b as world prices surged	About 90% of forest clearance is driven by agriculture

Practice questions

Scaffolded

Q1. Look at the partners figure. Name Australia's largest export market in 2024–25 and its share, and its largest source of imports.

Q2. Look at the top-exports figure below. Name Australia’s two largest goods exports in 2024–25 and their shares of total exports.



Bar chart of Australia’s top nine goods and services exports in 2024–25: iron ore 18.0 per cent, coal 11.0 per cent, natural gas 10.0 per cent, education travel 8.3 per cent, gold 7.3 per cent, beef, alumina, wheat and aluminium, with values in millions of dollars

Q3. Look at the exports-over-time figure. In which financial year did China overtake Japan as Australia’s largest goods market?

Q4. Look at the Victoria figure. Name the sector that leads Victoria’s exports and the sector that leads its imports.

Q5. Look at the waste figures. Describe what happened to Australia’s plastic waste exports between 2017–18 and 2024–25, and give one ban date from the figures.

Q6. Look at the production-vs-consumption figure. In 2020, which count was larger, and by how much?

Un scaffolded

Q7. Explain how and why Australia’s interconnections through trade changed between 2006–07 and 2024–25, at the national and global scales (E01, E02).

Q8. Choose one imported good you have consumed this week. Trace its environmental impacts on the place that produced the raw material, the place that manufactured it, and the place that receives its wastes at the end of its life. Use Australia’s waste trade (waste figures) as evidence for the end-of-life part (E03).

Q9. Evaluate the impacts of trade in one food product — palm oil or cocoa — on biodiversity in the places that produce it (E04).

Q10. “A country has not really improved its environmental sustainability if all it did was move its resource use and production overseas.” Discuss this statement using the idea of embodied carbon in trade (E05).

Inquiry task

Follow one good. Choose one good in your home or school bag that is (at least in part) imported — for example a phone, a shirt, a chocolate bar or a football. Produce a labelled diagram (half a page, on paper or digital) that shows:

(a) the place the raw material was mined or grown; (b) the place it was manufactured; (c) the place its wastes are likely to end up; and (d) the routes (ship, plane) that join them to Australia. Then write 3–4 sentences that: (e) identify one environmental impact at each of the three places; (f) state one way embodied carbon sits inside your good; and (g) judge, in one sentence, whether buying that good makes Australia’s sustainability numbers look better or worse than the world’s. Use real, named places; use at least one figure or source from this section to support one of your sentences.

Answers

Q1. China; 29.2% of exports. China is also the largest source of imports (19.1%). **Q2.** Iron ore (18.0%) and coal (11.0%). **Q3.** 2009–10. **Q4.** Exports: agriculture, fisheries and forestry; imports: manufactures (manufactured goods). **Q5.** Plastic waste exports fell from 158.7 to 20.6 thousand tonnes; any one ban date, e.g. plastic from 1 July 2021 (or glass 1 January 2021; paper and cardboard 1 July 2024). **Q6.** The production basis was larger, by 45.4 Mt (399.9 – 354.5). **Q7.** See fully-worked solutions. **Q8.** See fully-worked solutions. **Q9.** See fully-worked solutions. **Q10.** See fully-worked solutions.

Fully-worked solutions

Q7. *How:* Australia's trade grew and re-centred. Total goods exports more than tripled (\$169.6 b in 2006–07 to \$512.3 b in 2024–25); China rose from second place (\$22.8 b) to overtake Japan in 2009–10 and take about a third of goods exports (\$170.4 b) by 2024–25; smaller links such as Vietnam (\$1.6 b to \$10.3 b) also grew. *Why:* interconnection follows demand and resources. China's factories and cities needed iron ore, coal, gas and food that Australia had, close by in the Asia-Pacific region; Australia wanted the manufactures China made. So the national pattern (bigger flows) and the global pattern (a China-centred web) both changed.

Q8. A model answer for a chocolate bar: the raw material (cocoa) is grown mostly in West Africa — Côte d'Ivoire, Ghana and Cameroon supply about 68% of world cocoa — where forest clearance for cocoa has removed habitat (about 2.3 million hectares cleared in cocoa areas in the late 1990s–2000s); the beans are then processed in places such as Malaysia, Singapore and Indonesia (Australia's cocoa imports arrive mostly via those countries), where manufacturing uses energy and water; at the end of the product's life, the wrapper and leftovers become waste in Australia. The waste figures show Australia once exported that kind of waste — 158.7 thousand tonnes of plastic waste in 2017–18, much of it to Malaysia and Indonesia — so the end-of-life impact was once carried by receiving places overseas; after the 2021 plastic ban it mostly stays in Australia. Each place in the chain carries part of the good's environmental impact.

Q9. Palm oil: *impacts on biodiversity* — oil-palm plantations caused about 7% of the world's forest clearance (2000–2018), clearing forest habitat in Sumatra and Borneo for species such as the orangutan; about three quarters of palm-oil production is traded, so Australian food purchases are linked to that clearance. *The other side* — palm oil is the highest-yielding oil crop, and the trade supports incomes in Indonesia and Malaysia; the WWF argues that boycotting palm oil would shift demand to oil crops needing more land, worsening biodiversity overall; Indonesia's pause on new oil-palm permits (from September 2019, later permanent) shows a producing country trying to keep the trade while cutting the clearance. *Judgement:* the impact is serious but best reduced by better (forest-free) production and by certified supply, not by ending the trade. (Cocoa answers follow the same shape with the West African and Cocoa and Forests Initiative evidence.)

Q10. The statement is the heart of Position B. On the production basis, a country can look greener by closing factories and importing instead — the emissions move overseas (carbon leakage) while the global total is unchanged; the consumption basis exposes this, because it adds the emissions behind imports. That is why the statement has force: a sustainability claim based only on moved production is not a global gain. *The other side (Position A):* the Paris Agreement counts emissions where they are released, because that is what national laws can control; consumption counts are modelled and slow; and shifting production to a cleaner factory overseas can genuinely cut global emissions. *Australia's twist:* Australia is a net exporter of embodied carbon (+45.4 Mt in 2020), so part of its production emissions serve other countries — and part of any state's fall (for example Victoria's 28.5%) may reflect imported manufactures. *Conclusion:* the claim in the statement is largely correct — an “improvement” achieved by shifting production is relocation, not sustainability — and the test is whether the gain appears on both the production and the consumption basis.

Sources (real, checkable referents; figures computed from the values shown): DFAT, “Australia's top 25 goods and services exports and imports: 2024–25”, DFAT two-way goods trade by economy series (FY2006–07 to FY2024–25) and DFAT state/territory merchandise trade pivot (Victoria values, FY2024–25); DCCEEW, “Waste Exports data collation” (dated 19 November 2025) and Australian National Greenhouse Accounts, quarterly inventory to December 2025 and state and territory inventories FY2023–24; Global Carbon Atlas / Global Carbon Budget national production- and consumption-based emissions (series to 2021); FAO, *The State of the World's Forests 2022* (drivers of forest clearance, oil palm and cocoa evidence, Indonesia's pause on new oil-palm permits); Alcoa Australia, Portland smelter and export figures (retrieved 25 August 2026); Department of Industry, Science and Resources, *Resources and Energy Quarterly*, June 2026; Recycling and Waste Reduction Act 2020 and COAG agreement of 13 March 2020 (export bans); China's 2018 restrictions on waste imports (“National Sword”, public record); WWF public position on palm-oil boycotts. All retrieval dates on or before 25 August 2026.

Travel, tourism and culture: impacts on places and how to manage them

Curriculum link. Victorian Curriculum 2.0, Humanities: Geography, Levels 9 and 10 band. This section owns VC2HG10K08 — one clause of this content description is not taught in this book (see the scope note at the front of the book). The section draws on .E01–.E04 for linkage (they are illustrations, not a teaching order):

- .E01
- .E02
- .E03
- .E04

The ids .E05 and .E06 of this content description are kept for linkage only and are not taught here.

This section in one sentence: every day, people choose where to travel, what to do for fun, and what to see and learn — and when many people make the same choice, the place they choose is changed by it.

Theory

1. Three kinds of choices. A **travel choice** is a choice about where to go and how to get there — a weekend at the coast, a road trip, a flight to another country. A **recreational choice** is a choice about what to do in your free time — skiing, mountain-bike riding, a swim at the beach. A **cultural choice** is a choice about what to see, hear and learn — a festival, an art gallery, a historical site. The word for all of this activity is **tourism**: the activity of visitors. A **visitor** is a person who travels to a place away from their usual home, for a day or for a longer stay. A trip on which the visitor stays at least one night away from home is an **overnight trip**; a visitor who does not stay the night is a **day-tripper**. These are the two labels the tourism counts below use.

Three kinds of choices that connect people with places

Each choice links a person to a place. When many people make the same choice, the place changes.

Travel choices	Recreational choices	Cultural choices
<i>where we choose to go, and how we get there</i>	<i>what we choose to do in our free time</i>	<i>what we choose to see, hear and learn</i>
a weekend trip to the coast	skiing or snowboarding at a Victorian alpine resort	visiting an art gallery such as the NGV, Melbourne
a road trip along the Great Ocean Road (Vic.)	mountain-bike riding	a historical experience such as Sovereign Hill, Ballarat (Vic.)
a flight to a city in Europe	hiking in a national park	a festival such as the Adelaide Fringe (SA)
a cruise ship port call	swimming at a beach town	a concert or a play

Every visitor choice has an effect at the destination: jobs and income, but also crowding, rising housing costs and pressure on the environment.

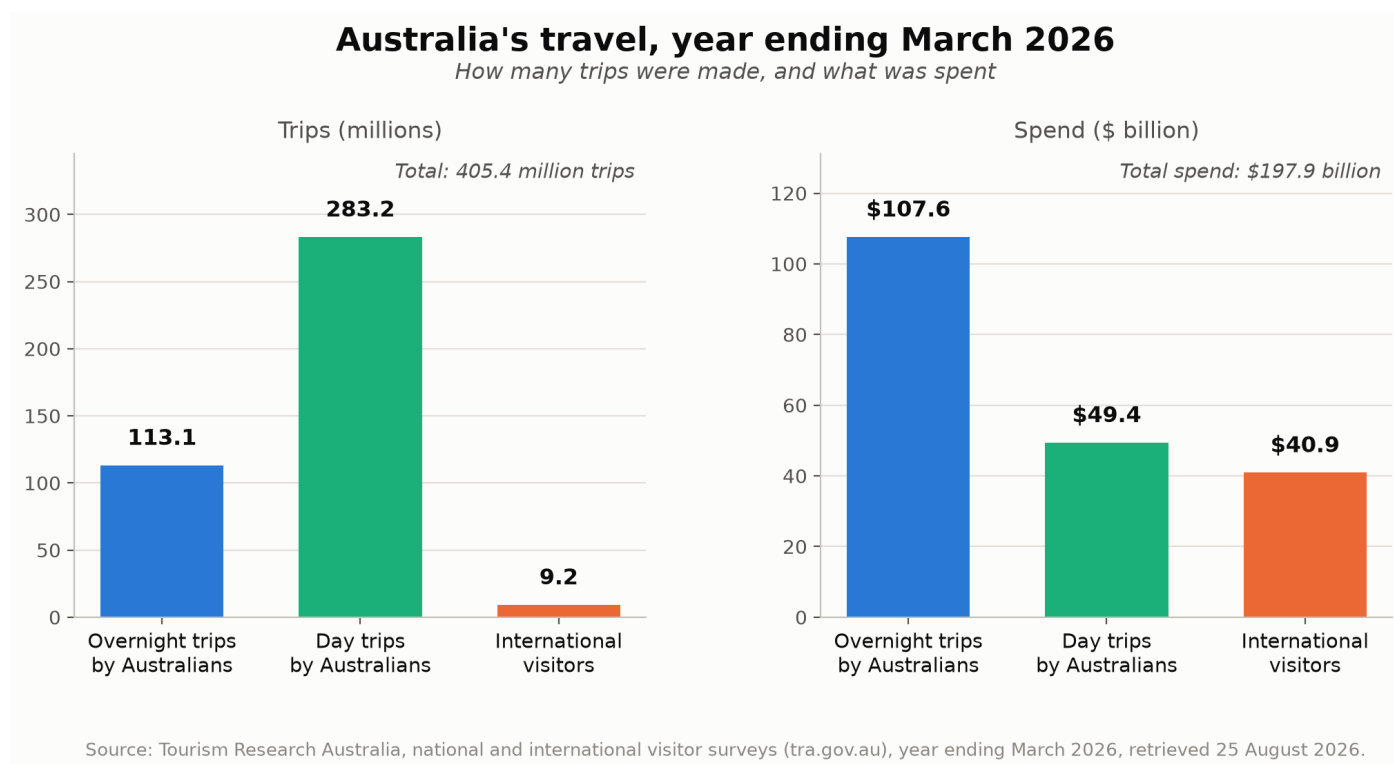
Original figure. The examples are real, named places; their sources are given in the section text.

Three columns labelled travel choices, recreational choices and cultural choices, each with four real examples such as a road trip along the Great Ocean Road, skiing at a Victorian alpine resort and visiting the National Gallery of Victoria

Figure 1. Three kinds of choices that connect people with places. The examples are real, named places; their sources are in the Sources list at the end of this section.

One person's choice is small. Millions of the same choice is a flow of people — and a flow of people changes a place.

2. How large is the flow? In the year ending March 2026, Tourism Research Australia counted **405.4 million trips** in and to Australia, on which visitors spent **\$197.9 billion**:

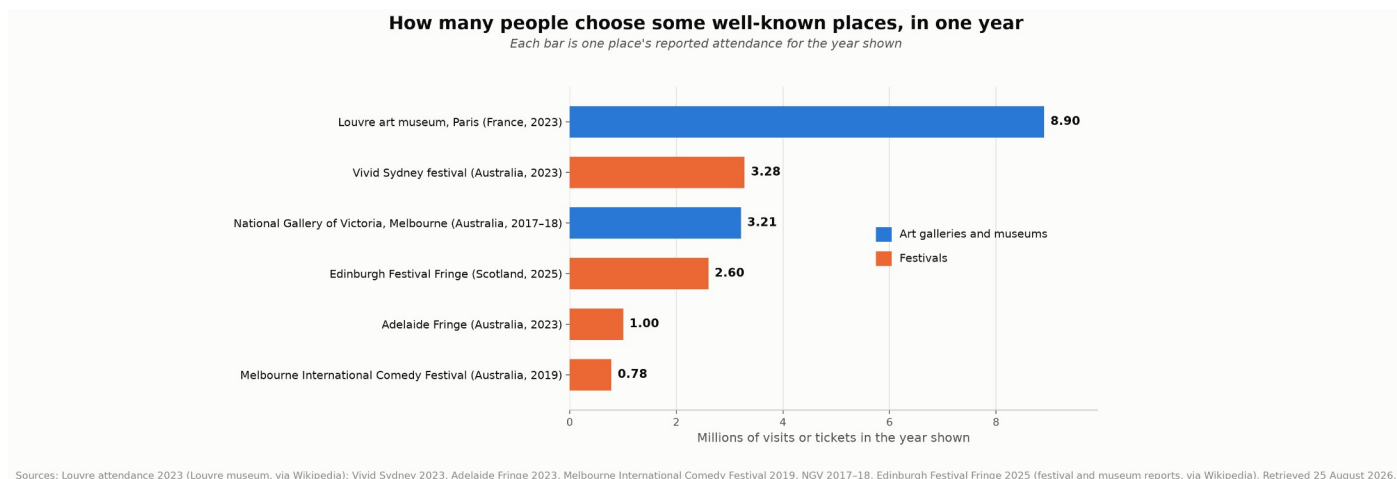


Two bar charts of Australian travel for the year ending March 2026: trips in millions and spend in billions of dollars, for overnight trips by Australians, day trips by Australians and international visitors

Figure 2. Australia's travel, year ending March 2026. Source: Tourism Research Australia, retrieved 25 August 2026.

Read the two panels together. Day trips are the most *numerous* (283.2 million), but international visitors — only 9.2 million trips — are spent \$40.9 billion, roughly as much as all 283.2 million day trips (\$49.4 billion). Per trip, an international visitor is worth many times a day-tripper. That is one reason places compete hard for visitors: the same number of visitors can mean very different money for a place.

3. Places that attract visitors. Some places pull visitors from far away because of what they offer: a one-off thing to see, a famous collection, or the chance to be part of an event. Figure 3 shows six real places and how many people chose them in one year.



Bar chart of yearly attendance at six visitor places, from the Louvre in Paris at 8.90 million down to the Melbourne International Comedy Festival at 0.78 million, with the year shown for each

Figure 3. How many people choose some well-known places, in one year.

Notice the mix:

- **Festivals** — the Adelaide Fringe sold 1 million tickets in 2023; the Melbourne International Comedy Festival counted 776,737 visits in 2019; Vivid Sydney drew 3.28 million people in 2023; the Edinburgh Festival Fringe sold 2.6 million tickets in 2025.
- **Art galleries** — the National Gallery of Victoria (NGV) in Melbourne, founded in 1861 and Australia's most-visited art gallery, recorded 3,210,000 visits in 2017–18; the Louvre in Paris is the world's most-visited art gallery, with 8.9 million visits in 2023.
- **Historical experiences** — Sovereign Hill, Ballarat (Vic.), opened on 29 November 1970 and rebuilds a 1850s gold-rush town as an outdoor museum.

A place like this brings visitors, and visitors bring money, jobs and life to a place. They also bring pressure. That is the next idea.

4. A model of impacts. An **impact** is an effect that a change has on a place. Geographers sort impacts into three kinds: **economic** (money, jobs, prices), **social** (people, community life, housing, noise) and **environmental** (the natural surroundings: waste, water, land, wildlife). Every kind can be positive *and* negative at the same time — the same visitor who pays for a meal also adds to the rubbish. Figure 4 is the model, with a real example in every cell.

A model of tourism impacts: the same visitors change a place in more than one way

Every example below is a reported impact of tourism in a real place

Type of impact	Positive impacts			Negative impacts		
Economic (money and jobs)	jobs in hotels, cafes, transport and shops	income for local businesses	taxes that can pay for local services	higher prices, including for housing	jobs that exist only in the busy season	profits that flow out of the town to outside owners
Social (people and community)	facilities and events that residents can enjoy too	contact between visitors and the local community		crowding, noise and traffic	homes turned into short-stay visitor rentals	residents moving away (Venice's island count fell below 50,000 in 2023)
Environmental (natural surroundings)	visitor money that can pay to protect a place	visitors who learn to value and care for a place		waste, pollution and damage to fragile places	pressure on water and energy	cruise ships near old buildings (Venice banned large ships from its canals in 2021)

One decision by a visitor — where to go, when, and what to do — adds to all three rows of this table at once.

Original model. Named examples: Venice (island population 2023; cruise-ship ban 2021), Barcelona (short-stay rental licences). Sources per section text.

Table modelling tourism impacts in three rows, economic, social and environmental, against two columns, positive and negative, with a real example in each cell, including Venice's falling island population and its 2021 ban on large cruise ships

Figure 4. A model of tourism impacts. Use it as a checklist: when you study any place, walk all three rows and both columns so nothing is missed.

5. Case study: Europe — when the flow gets too big for the place. In 2018 the UN World Tourism Organization (UNWTO) put a name to the problem: **overtourism** — the impact of tourism on a place when it worsens the quality of life of residents, or the quality of the visit, too much. Note the kind of word it is: a *judgement* word, not a measurement. Two people can count the same visitors and disagree about whether it is “too many” — the café owner whose income depends on the crowd, and the resident one street back who can no longer buy bread because the bakery became a souvenir shop. The strongest case *for* more visitors is jobs, income and the money to keep galleries, festivals and old buildings alive; the strongest case *for* limits is that residents need homes, shops and quiet too. A good answer holds both cases before it judges.

Venice (Italy). Venice is the world's best-known case. The islands of the historic centre held about 50,000 residents in 2025 — the count fell below 50,000 for the first time in 2023 — while the whole local government area of Venice holds 249,466 people (Figure 5). Most of the city's residents, including many tourism workers, now live on the mainland.

Venice in 2025: where the city's residents live

The famous island city is only a small share of the whole municipality

Island historic centre
about 50,000 residents



Mainland districts (Mestre and others)
about 199,000 residents

The historic centre's resident count fell below 50,000 for the first time in 2023.
Most people who work in the tourism industry now live off the islands.

Source: Municipality of Venice population, 2025 (via Wikipedia, retrieved 25 August 2026); 2023 milestone from municipal registry reporting.

Stacked bar showing that of the 249,466 residents of the Venice local government area in 2025, only about 50,000 live in the island historic centre and about 199,000 live in mainland districts such as Mestre

Figure 5. Venice in 2025: where the city's residents live.

Venice has responded with real rules, each dated:

- **2021** — large cruise ships were banned from the city's canals, after decades of concern about their wash, pollution and the sheer size of their crowds.
- **2024** — the city trialled a €5 entry fee for day-trippers on the busiest days.
- **2025** — the fee returned at €5–€10 on peak days, with a booking needed to enter the old city on those days. The booking doubles as a count of who comes, which the city can use to adjust the rule.

Amsterdam (Netherlands). Amsterdam ended guided tours of its red-light district in 2020, ran a “Stay Away” campaign in 2023 aimed at rowdy visitors, stopped new hotels from opening in the centre, and has moved to close its central cruise ship terminal.

Barcelona (Spain). Barcelona's Park Güell takes about 9 million visits a year and now caps entry at 800 people an hour. In a 2017 city survey, 60 per cent of residents said tourism was at or over the city's limit. In June 2024 the city announced it will not renew licences for tourist flats from 2028 — about 10,000 homes would return to ordinary housing. A **short-stay rental** is a home or flat hired to visitors for a few nights at a time; when investors buy homes to rent to visitors, fewer homes are left for residents, and rents rise.

Two management ideas appear again and again in Europe: **dispersion** — spreading visitors across other places and quieter times — and **monitoring** — counting visitors with data so rules can be adjusted. The UNWTO's 2018 guidance to cities names both.

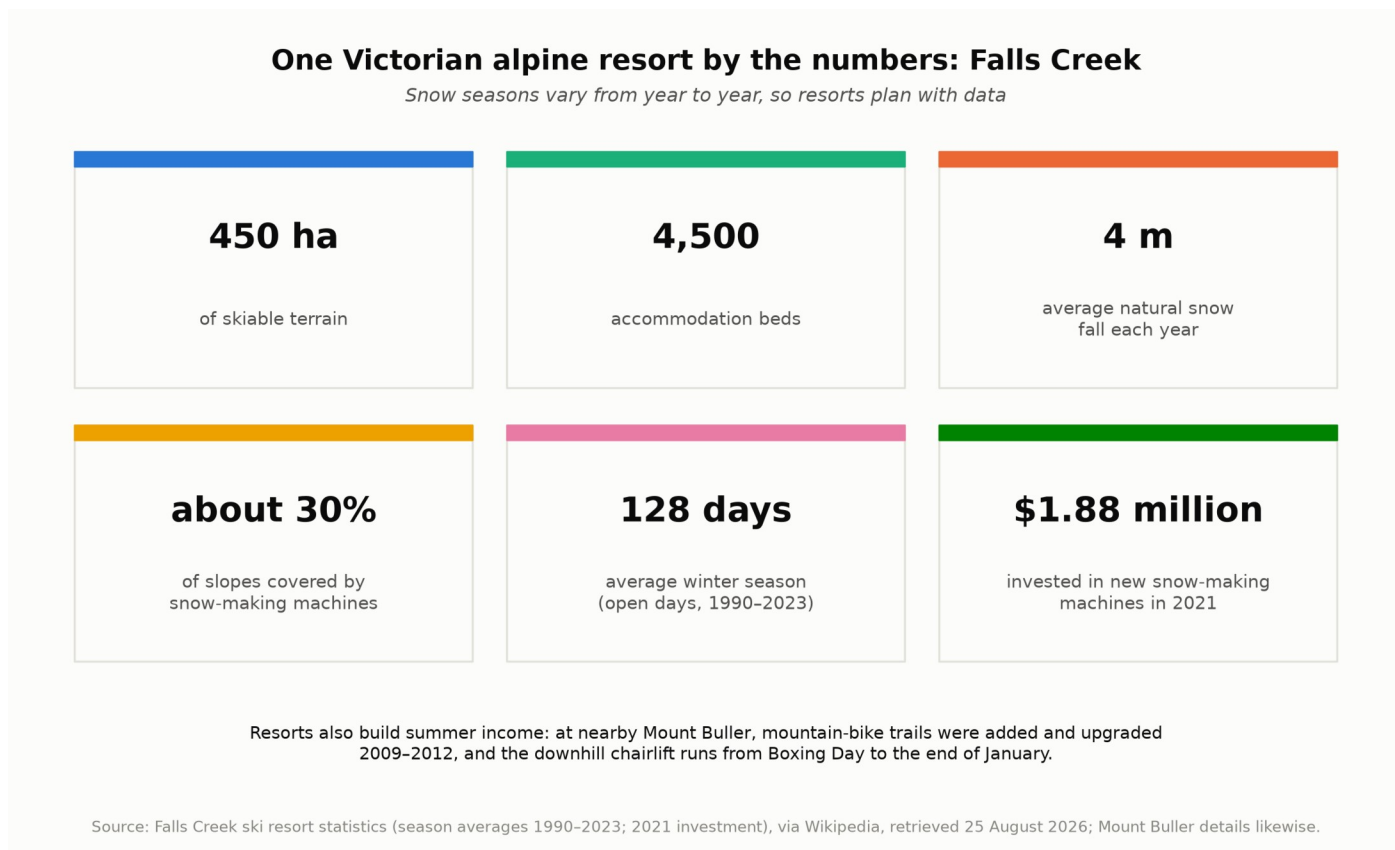
6. Small Australian towns: living on the flow. Tourism is not only a big-city story. In small towns it can be the whole economy.

Bright (Vic.) — population 2,620 at the 2021 census. Bright sits in the alpine foothills of north-east Victoria and tourism is its biggest industry: snow in winter, mountain rides and walks in summer, and the Bright Autumn Festival each April, when the town's population of 2,620 grows with visitors. The **census** is Australia's official count of every person in the country, run every five years by the Australian Bureau of Statistics (ABS).

Port Campbell (Vic.) — population 440 at the 2021 census, on the Great Ocean Road 224 km south-west of Melbourne. The Twelve Apostles rock stacks stand 12 km east of the town, inside Port Campbell National Park, which was recorded at about 2 million visits a year in the late 1990s. The Great Ocean Road itself is 240 km long, built by returned soldiers between 1919 and 1932 as a war memorial — the world’s largest.

For towns like these, the positive economic impacts in Figure 4 (jobs, income, living businesses) are real and immediate — and so are the negatives: much of the work is **seasonal** (busy in holidays, quiet outside them), a town’s services can bend towards visitors rather than residents, and when the flow stops — bad weather, a closed road, a pandemic — the town feels it in the same season. Small populations also mean small swings matter: a few households moving in or out shows up as a big percentage change. Worked example 2 reads one of these towns straight from census numbers.

7. Changing choices, future places. Visitor choices are not fixed. Consider the Victorian alpine resorts, built on a recreational choice — skiing — that depends on snow.



Fact tiles for Falls Creek alpine resort: 450 hectares of resort area, 4,500 beds, about 4 metres of snow in a good season, about 30 per cent of runs covered by snowmaking, a 128-day average season over 1990 to 2023, and a \$1.88 million investment in 2021

Figure 7. Falls Creek (Vic.), in six facts.

If winters warm and snow becomes less reliable, visitors may choose differently: fewer ski trips in poor seasons, more interest in resorts that can make snow, or a switch to snow-free holidays such as mountain-bike riding. Places feel each of those choices:

- **Snowmaking grows.** Falls Creek can already make snow on about 30 per cent of its runs, and in 2021 a further \$1.88 million was invested in its snowmaking. Snowmaking needs water and power, so the environmental row of Figure 4 grows even as the economic row is protected.
- **The season stretches.** Mt Buller (208 km north-east of Melbourne; population 243 at the 2016 census) runs its chairlifts in summer from Boxing Day to the end of January for sightseers and riders, and built the Mt Buller World Trail network over 2009–2012. An alpine resort that once meant “winter only” re-makes itself as a year-round destination: new trails, new carparks, new cafes — the place itself changes.

- **Some places may shrink.** Resorts with less snowmaking and fewer summer options may lose visitor numbers over time, and the beds, shops and jobs built around them shrink with the flow.

That is .E04 in one line: changing choices do not just move people — they re-make the places the people were choosing.

8. Managing the impacts. Places are not helpless in the face of the flow. Figure 6 collects six tools, each shown with a real, dated example. **Sustainability** is the goal word here: keeping a place working for residents, visitors and the environment over the long term, not taking the most from it this year.



Six numbered cards, each naming one management strategy — limit numbers, use pricing, spread the flow, make rules, educate and enforce, monitor with data — each with a real dated example such as Machu Picchu's daily cap and Venice's day-visitor fee

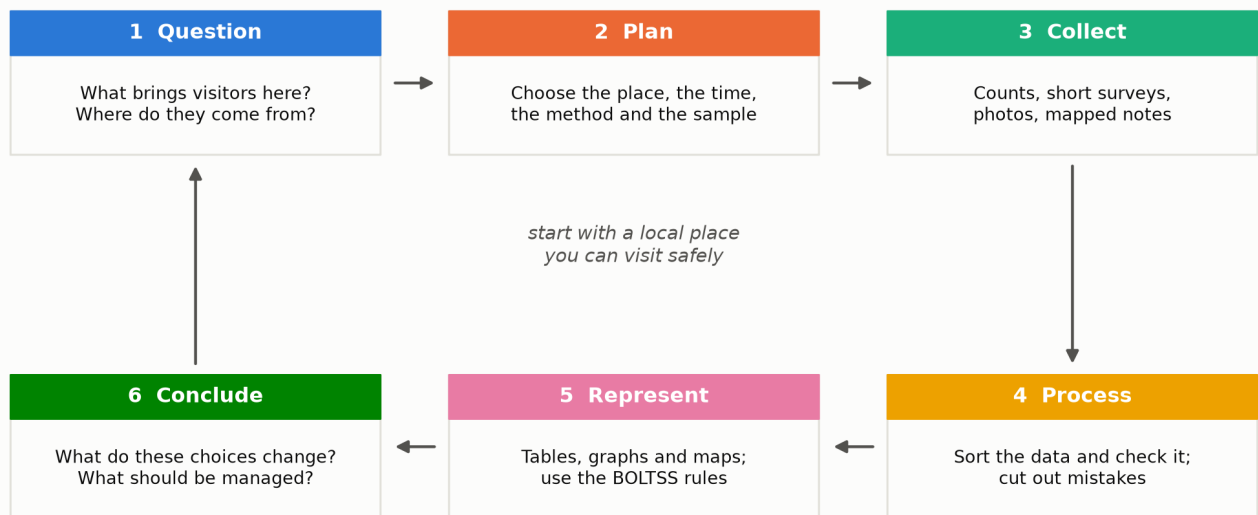
Figure 6. A management toolkit: six ways places respond to visitor pressure.

Read Figure 6 against Figure 4: each tool targets one or more negative cells of the impact model. A cap on numbers (Machu Picchu, Park Güell) attacks the environmental and social cells; pricing (Venice, Mount Fuji) makes visitors pay towards the care of the place; rules about housing (Amsterdam, Barcelona) aim straight at the “homes turned into short-stay rentals” cell. And monitoring sits under all of them — a rule that is not counted is a guess.

9. Finding out for yourself: the fieldwork cycle. Impacts and management are not only read about — they are checked in the field. Geographers investigate a place by moving around the cycle in Figure 8: ask a question, plan, collect information (fieldwork is collecting information in the place itself — counting, observing, surveying, photographing), process it, represent it, and conclude. Any map you draw follows **BOLTSS** — **B**order, **O**rientation, **L**egend, **T**itle, **S**cale, **S**ource — the six things a proper map carries. The inquiry task at the end of this section runs this cycle on a place you choose.

A fieldwork cycle: studying visitor choices at a local place

Six steps — then reflect on what you found and go around again



The fieldwork cycle drawn as a six-step loop: question, plan, collect, process, represent, conclude, with an arrow returning from conclude to question

Figure 8. The fieldwork cycle.

Worked examples

Example 1 — scaffolded

Venice as a managed place. Use the figures in this section to explain what is happening to Venice, and judge whether its entry fee is enough.

Working	Comment
1. Read the data first. Figure 5: about 50,000 residents in the island historic centre (2025), down below 50,000 for the first time in 2023; 249,466 in the whole local government area.	Data before judgement. The pattern — residents leaving the islands — is what needs explaining.
2. Walk the impact model (Figure 4). Economic: visitor jobs and income; the entry fee raises money for the city. Social: residents moving away; homes becoming short-stay rentals. Environmental: large cruise ships banned in 2021 over damage to the lagoon.	The model is a checklist. Using all three rows stops a one-sided answer.
3. List the tools in use (Figure 6). Pricing (€5–€10 entry fee on peak days), limits (cruise ship ban), rules (booking required), monitoring (the booking counts each charged day).	Naming the tools shows <i>which</i> negative impacts the city is attacking.
4. Hold the strongest case on each side. For the fee: day-	A judgement is only as strong as the best case against it.

trippers pay something towards the city they wear, and peak-day crowds may thin. Against it: a fee of €5–€10 is small next to a day's spending, so most will still come; and a fee does nothing about housing, the reason residents leave.

5. Conclude with a reason. The fee is a real tool for money and monitoring, but by itself it is not enough: the loss of residents is driven by housing and daily life, which is why cities like Barcelona pair pricing with housing rules.

Answer the question asked, on the evidence walked in steps 1–4.

Example 2 — unscaffolded

Reading a tourism town from census numbers. Port Campbell (Vic.) recorded these census populations: 372 (2001), 599 (2006), 618 (2011), 478 (2016), 440 (2021). What does the series tell you about a small tourism town?

Describe the pattern before explaining it: the town grew by more than half between 2001 and 2006 (372 to 599), held roughly steady to 2011 (618), then fell in the next ten years to 440. For a city of millions these swings would be invisible; for a town of 440 they are large — a change of a few dozen households. That is the first finding: a very small town's population can move sharply with work and housing, not just with births and deaths.

Then connect the town to its visitors. Port Campbell sits 12 km west of the Twelve Apostles on the Great Ocean Road, a route built as a war memorial and now one of Australia's most-visited drives; the national park around the town was recorded at about 2 million visits a year in the late 1990s. Jobs in the town — accommodation, food, fuel, tours — exist because of that flow, so the positive economic cells of Figure 4 are the town's income. At the same time the town is exposed: a road closure, a bad season or a pandemic cuts the flow and the town feels it in the same season, and services bend towards visitors.

Conclude carefully, without overclaiming: the census series alone cannot say *why* the numbers rose and fell (census counts can move with a single large workplace or accommodation project), but it does show a small town riding a visitor economy — growing with the flow's good years and feeling the thin ones. That exposure, good and bad at once, is the impact of tourism on the economy of a small Australian town (. E03).

Practice questions

Scaffolded

Q1. Sort these six choices under *travel*, *recreational* or *cultural* (Figure 1). The first is done for you. (a) flying to Edinburgh to spend a week at the Fringe festival — *cultural* (the choice is about what to see and hear); (b) driving from Melbourne to Port Campbell for the day; (c) a Saturday swim at a beach town; (d) visiting Sovereign Hill with your school; (e) snowboarding at Falls Creek; (f) taking the train to the NGV on a Sunday.

Q2. Use Figure 2 (year ending March 2026). (a) Which type of travel had the most trips? (b) Which type had the most spend? (c) Work out the spend per trip for international visitors and for day trips (divide spend by trips; a calculator is fine). Round to the nearest ten dollars. (d) In one sentence: why might a small town want more overnight visitors, even if their number is smaller?

Q3. Figure 3 mixes festivals and galleries. Choose one of each, and for each: name the place and its country, and give one reason it attracts visitors from far away.

Q4. Copy the 3×2 grid of Figure 4 (economic, social, environmental $\times$ positive, negative). Choose **one** named place from this section and fill all six cells for it, with a different detail in each cell.

Q5. Match each tool on the left to the real example on the right, then say which *negative* impact from Figure 4 each example is trying to reduce. Tools: (i) limit numbers; (ii) use pricing; (iii) make rules; (iv) educate and enforce. Examples: (A) Kyoto fines tourists about US\$92 for photographing geisha without consent; (B) Park Güell caps entry

at 800 people an hour; (C) Barcelona will not renew tourist-flat licences from 2028; (D) Mount Fuji charges 2,000 yen to climb.

Q6. The word *overtourism*: (a) in your own words, write what the UNWTO means by it; (b) give one named place from this section where a café or shop owner might *disagree* that visitor numbers are a problem — say why their view is reasonable too.

Unscaffolded

Q7. The same flow of visitors can be good news to one group in a place and bad news to another. Explain this for **one** named place in this section, naming both groups and both effects.

Q8. Bright and Port Campbell are both small Victorian towns whose economies lean on tourism. Compare them: what brings visitors to each, and how does the size of each town (2,620 and 440 at the 2021 census) change how the flow is felt?

Q9. In June 2024 Barcelona announced it will not renew tourist-flat licences from 2028. Predict one group that gains, one group that loses, and one effect nobody intends.

Q10. Use the Falls Creek facts (Figure 7) and the Mt Buller facts in Theory part 7. Explain two ways that changing visitor choices may re-make a Victorian alpine resort between now and 2040.

Inquiry

Q11. Run the fieldwork cycle (Figure 8) on **one** place in Victoria that attracts visitors — a place from this section, or one near you. (a) Write one inquiry question about visitor impacts at your place. (b) Plan one way to collect information, including at least one fieldwork method (counting, observing, surveying or photographing in the place). (c) Represent your information as a simple bar chart **or** a sketch map that follows BOLTSS. (d) Write a two-sentence conclusion that answers your question. (e) Recommend one tool from Figure 6 for your place, and give your reason. Note a source for every fact you use (a source line with the date you found it).

Answers

Q1. (b) travel; (c) recreational; (d) cultural; (e) recreational; (f) cultural. | **Q2.** (a) day trips (283.2 million); (b) overnight trips by Australians (\$107.6 billion); (c) international about \$4,450 per trip; day trips about \$170 per trip; (d) fewer visitors who stay overnight can bring as much spend as many day-trippers, so towns chase the stay. | **Q3.** Any correct pair, e.g. Adelaide Fringe (Australia): a festival of thousands of shows that exists nowhere else; NGV (Australia): a famous, 1861-founded collection you must visit Melbourne to see. | **Q4.** Any six cells filled with sensible, different details for one named place. | **Q5.** (i)–B, crowding and damage at a fragile place; (ii)–D, making climbers pay towards the place (also spreads some walks to other days); (iii)–C, homes lost to short-stay rentals; (iv)–A, crowding and disrespect towards residents. | **Q6.** (a) tourism’s impact on a place when it worsens residents’ quality of life, or the visit, too much; (b) e.g. Vivid Sydney or the Adelaide Fringe: the owner’s income depends on the crowd, so for them the crowd is the good news. | **Q7.** Any place with two named groups and matched positive/negative effects, e.g. Venice: tourism workers and owners gain income; long-term residents lose housing and daily shops. | **Q8.** Bright: alpine gateway with a festival calendar, large enough to keep more year-round services; Port Campbell: one world-famous drive and a very small population, so the flow is felt more sharply, season by season. | **Q9.** Gains: residents seeking rentals; loses: short-stay owners and some visitors; unintended: e.g. visitor spending shifts to hotels, or rents rise anyway if housing is not built. | **Q10.** Any two worked from the facts, e.g. bigger snowmaking (water, power, cost) as skiers chase reliable snow; resorts re-made as year-round destinations with summer trails and sightseeing chairlifts. | **Q11.** Judged on the cycle: a question, a collection plan with fieldwork, a BOLTSS-correct representation or labelled chart, a conclusion that answers the question, a tool with a reason, and source lines. |

Fully-worked solutions

Q1. (b) The choice is about where to go and how to get there → travel. (c) A swim is what you do in free time → recreational. (d) A historical site is what you see and learn → cultural. (e) Snowboarding is a free-time activity → recreational. (f) An art gallery is what you see → cultural. (Note (a): the Fringe trip involves travel, but the *choice* described is about what to see and hear, so it sorts as cultural — one trip can carry more than one kind of choice.)

Q2. (a) Day trips, 283.2 million. (b) Overnight trips by Australians, \$107.6 billion. (c) International: \$40.9 billion ÷ 9.2 million trips ≈ \$4,450 per trip. Day trips: \$49.4 billion ÷ 283.2 million ≈ \$170 per trip. (d) A small number of staying visitors can spend about as much as a huge number of day-trippers, so towns work to turn day-trippers into overnight guests.

Q3. Model pair. Festival: the Adelaide Fringe (Australia) — 1 million tickets in 2023 — attracts visitors because for a few weeks it offers thousands of live shows that exist nowhere else. Gallery: the Louvre (France) — 8.9 million visits in 2023 — attracts visitors because its collection (including the Mona Lisa) can only be seen in Paris. Each reason is about what only that place offers.

Q4. Model answer for **Venice**. Economic positive: jobs and income from visitors; the entry fee raises money for the city. Economic negative: prices, including housing, rise with the crowd. Social positive: historic buildings and crafts are kept alive by visitor money. Social negative: residents leave — below 50,000 in the islands in 2023 — as homes become short-stay rentals. Environmental positive: visitor money and attention support care of the lagoon and its buildings. Environmental negative: crowding, waste and (before 2021) large cruise ships damaging the canals.

Q5. (i)–B: a cap on numbers directly reduces crowding and wear at a fragile place (environmental, social). (ii)–D: a climbing fee makes each climber pay towards the place’s care (economic tool against environmental wear). (iii)–C: a rule about licences returns homes from short-stay rentals to residents (social). (iv)–A: a fine for photographing geisha without consent teaches respect and reduces crowding and harassment of residents (social).

Q6. (a) The UNWTO uses overtourism for the impact of tourism on a place when it worsens residents’ quality of life, or the quality of the visit, too much. (b) Model: a café owner near the NGV on a festival weekend. The crowd that a resident calls “too many” is the owner’s income; for them the same visitors pay wages and keep the street alive. Both readings of the same count are reasonable — which is exactly why the word is a judgement, not a measurement.

Q7. Model: Venice. Group 1: tourism business owners and workers — the flow is income and jobs (economic positive). Group 2: long-term island residents — the same flow bids up housing, turns homes into short-stay rentals

and thins everyday shops, so residents leave (social negative). One flow, two impacts: this is why the impact model has both columns for every row.

Q8. Bright draws visitors across four seasons — snow, rides, walks and the Autumn Festival — so its visitor flow is spread through the year, and its larger population (2,620) supports more year-round services. Port Campbell’s flow is tied to one drive and one coastline: huge against a town of 440, and mostly a day flow from the Great Ocean Road. The smaller the town, the larger each visitor season is relative to the town, and the sharper the swing when the flow changes — small-town tourism is a big income and a big exposure at once.

Q9. Gains: residents who want a home in the centre, because about 10,000 flats return to ordinary housing. Loses: owners who bought flats to rent to visitors, and some visitors who will pay more or stay elsewhere. Unintended: hotel prices may rise as displaced visitors book hotels, or the pressure may simply move to neighbouring towns — a rule in one place shifts the flow, it does not remove it.

Q10. Model answer, two changes. (1) If skiers increasingly chase reliable snow, resorts compete on snowmaking: Falls Creek already covers about 30 per cent of its runs and invested \$1.88 million more in 2021 — by 2040 the resort’s dams, pumps and power use would be a bigger part of the place, growing the environmental row of the impact model while protecting the economic row. (2) If visitors also choose snow-free holidays, resorts stretch the season the way Mt Buller does (summer chairlifts, the World Trail built 2009–2012): new trails, cafés and carparks re-make the resort on the ground as a year-round destination. A resort that cannot make either change may see its visitor flow — and the town built on it — shrink.

Q11. Model shape (a Port Campbell example). (a) Question: “Do visitor numbers change how Port Campbell’s main street is used across a day?” (b) Collection: a one-hour pedestrian count at the main street at 10 am and 4 pm on a holiday weekend, plus photographs — fieldwork in the place. (c) Representation: a two-bar chart of the counts, or a sketch map of the street with BOLTSS (border, orientation arrow, legend of shop types, title, scale, source). (d) Conclusion: “Most shops on the main street serve visitors, and the street is busiest mid-afternoon. Visitor choices shape what the street offers.” (e) Tool: spread the flow — a signed walking loop to the lesser-known coastal looks would take pressure off the main street at peak hours. Sources: my own count (date), census population (ABS, 2021).

Sources

All sources retrieved **25 August 2026** unless stated.

- **Tourism Research Australia** (tra.gov.au), national and international visitor surveys, year ending March 2026 — Figure 2 and Theory part 2.
- **Australian Bureau of Statistics**, Census of Population and Housing 2021 and 2016, QuickStats — Bright (2,620, 2021), Port Campbell (440, 2021; series 2001–2021), Mount Buller (243, 2016).
- **UN World Tourism Organization**, 2018 — definition of overtourism and guidance on dispersion and monitoring (Theory part 5).
- **Wikipedia (English)**, article by article: *Venice* (island and municipal population, 2025; 2023 milestone; 2021 cruise ship ban; 2024–25 entry fee), *Overtourism*, *Amsterdam*, *Barcelona* (2017 survey; June 2024 tourist-flat decision), *Park Güell* (9 million visits a year; 800 per hour cap), *Machu Picchu* (5,000 per day cap), *Mount Fuji* (4,000 per day cap; 2,000 yen fee), *Kyoto* (geisha-photograph fine of about US\$92), *Louvre* (8.9 million visits, 2023), *Edinburgh Festival Fringe* (2.6 million tickets, 2025), *Adelaide Fringe* (1 million tickets, 2023), *Vivid Sydney* (3.28 million, 2023), *National Gallery of Victoria* (founded 1861; 3,210,000 visits, 2017–18), *Sovereign Hill* (opened 29 November 1970), *Melbourne International Comedy Festival* (776,737 visits, 2019), *Falls Creek, Victoria* (resort facts; 128-day average season 1990–2023; \$1.88 million investment, 2021), *Mount Buller, Victoria* (distance, population; summer chairlifts; World Trail 2009–2012), *Great Ocean Road* (240 km; built 1919–1932 by returned soldiers as a war memorial), *Port Campbell National Park* (about 2 million visits a year, late 1990s).
- Figures 1, 4, 6 and 8 are original teaching models drawn for this section; every example inside them is one of the real, sourced referents above.

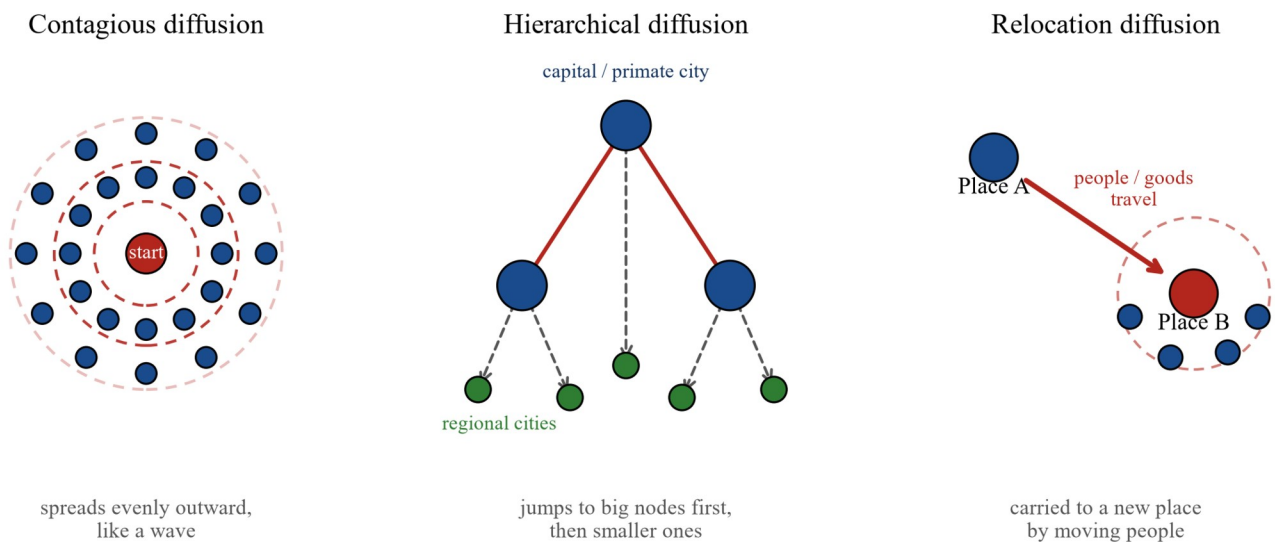
A connected world: how trends, pandemics and market crashes spread

Theory

Interconnection means that places, people and systems are joined to each other, so that what happens in one place can affect other places far away. Because the world is more interconnected than ever before — by air travel, shipping, phone and internet networks, trade and money flows — things do not stay in one place. They spread.

The geographical name for this spreading is **diffusion** — the way an idea, a behaviour, a disease or a shock moves across space from the place it began to new places. Geographers use models (simple pictures) to describe *how* something spreads. The three main models are shown in the figure below.

Three models of spatial diffusion



Three labelled node diagrams comparing contagious, hierarchical and relocation diffusion

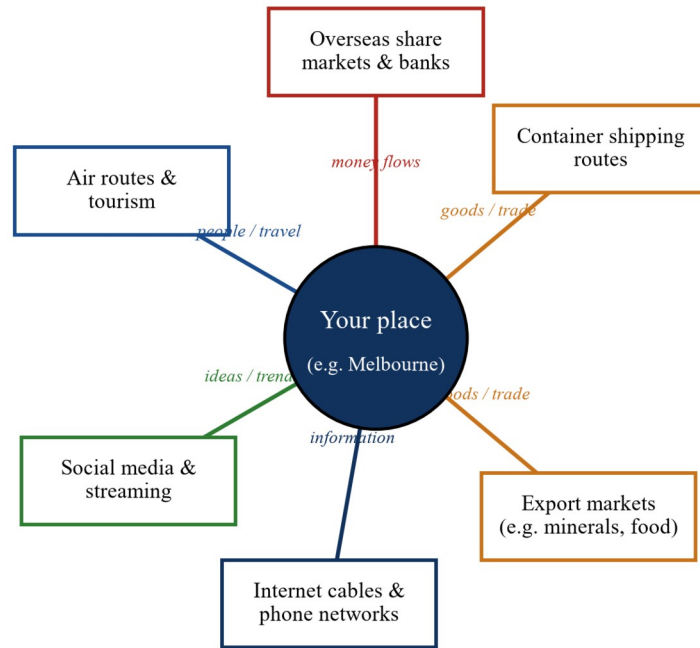
- **Contagious diffusion** spreads evenly outward from a starting point, like a wave or like a cold passing through a classroom. It does not need people to move far; it spreads through contact between neighbours.
- **Hierarchical diffusion** jumps to the biggest or most connected places first — such as capital cities and major ports — and then trickles down to smaller towns. A new fashion often appears in a world city before it reaches a regional town.
- **Relocation diffusion** is carried to a new place by people or goods that move from place to place. The thing itself travels with its carrier, then spreads from the new place.

Which model applies depends on what is spreading and on the routes it can use. Those routes are the interconnections between places.

A place sits in a web of interconnection

Every place — including your own — is tied into the world through many different kinds of flow. Each flow is a route along which a trend, a disease or a money shock can travel. The figure below shows the main kinds of connection for one Australian city.

A place in a web of global interconnection



Interconnection: one place is tied to the world through many kinds of flows. Each flow is a route along which trends, diseases or money shocks can travel.

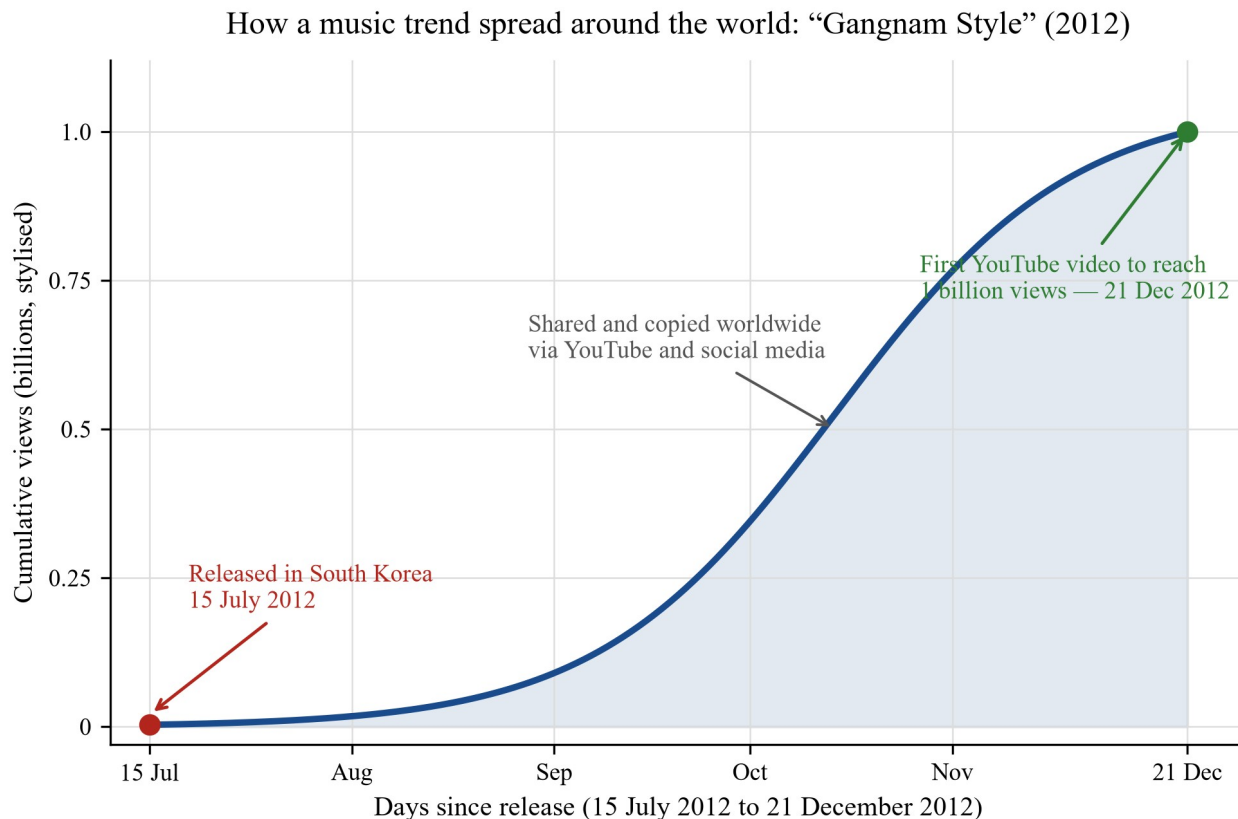
Hub-and-spoke diagram showing Melbourne linked to the world by flows of money, goods, people, ideas and information

When a place has many strong connections, things reach it quickly. When a place is weakly connected, things reach it slowly or not at all. This is why the spread of a trend, a pandemic or a financial shock is **spatially uneven** — it hits some places hard and early, and other places less or later.

Worked examples

Example 1 — scaffolded (trends, E01 and E02)

Question: Use the figure below to explain how a music trend spread from one country to the whole world in a few months.



Release and 1-billion-view dates are real; the curve between them is drawn to show the shape of a fast, network-led spread.

Line chart of cumulative views of a viral music video from July to December 2012, anchored on real release and 1-billion-view dates

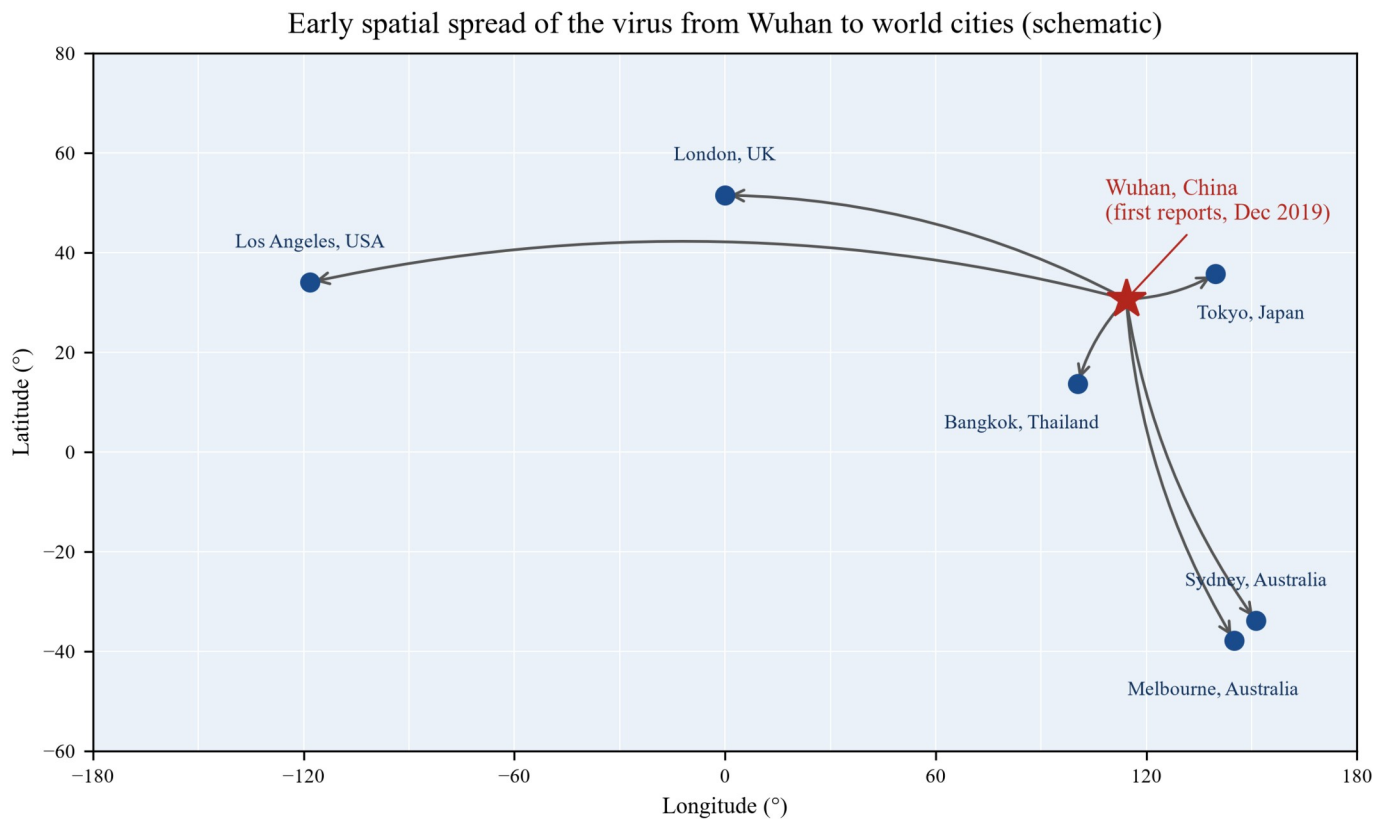
The song “Gangnam Style”, by the South Korean artist PSY, was released on **15 July 2012**. By **21 December 2012** its music video was the first on YouTube ever to reach **1 billion views**. That is a spread across the world in about five months.

Step	What happened	Type of diffusion
1	The video was released in South Korea and uploaded to YouTube.	Start point
2	People travelling, and migrants, carried the link to other countries; people shared it on social media.	Relocation (people and links moving)
3	It was picked up first in big, well-connected cities and on big media channels, then copied everywhere.	Hierarchical (big nodes first)
4	Within months, people almost everywhere had seen, copied or danced to it.	Contagious (person-to-person sharing)

Answer: The trend spread because the world is interconnected by travel and by digital networks. Travel (E01) carried the song to new places, and streaming and social media let it be copied almost instantly, so it moved through the hierarchy of cities and then person-to-person. A song released in one country could therefore become a world trend in months.

Example 2 — scaffolded (pandemics, E03)

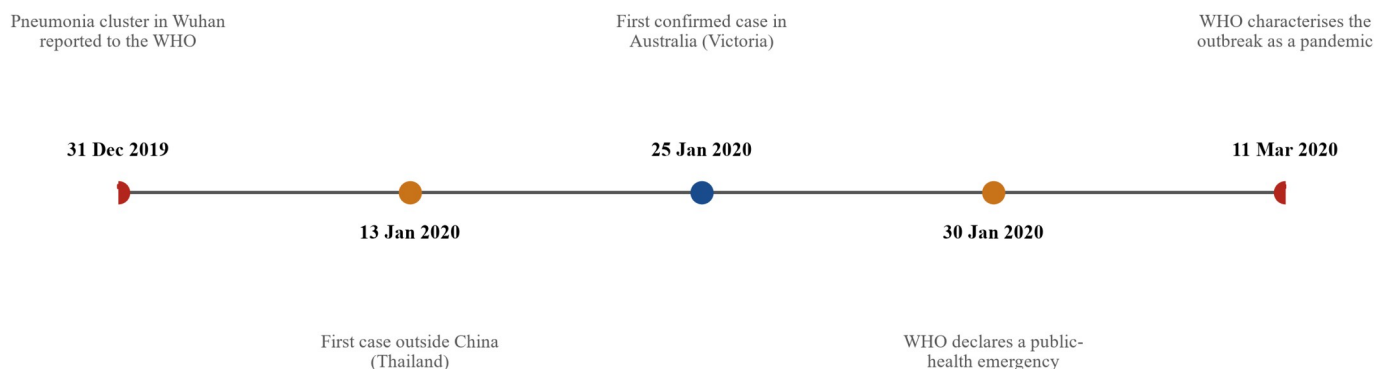
Question: Use the map and timeline below to describe the spatial spread of the virus that causes COVID-19, and give two reasons why the number of cases (the incidence) differed between countries.



Cities plotted by latitude and longitude; arrows show the direction of early spread via air travel. This is a schematic map, not a coastline map.

Schematic world map of cities by latitude and longitude with arrows showing early spread of the virus from Wuhan, including Sydney and Melbourne

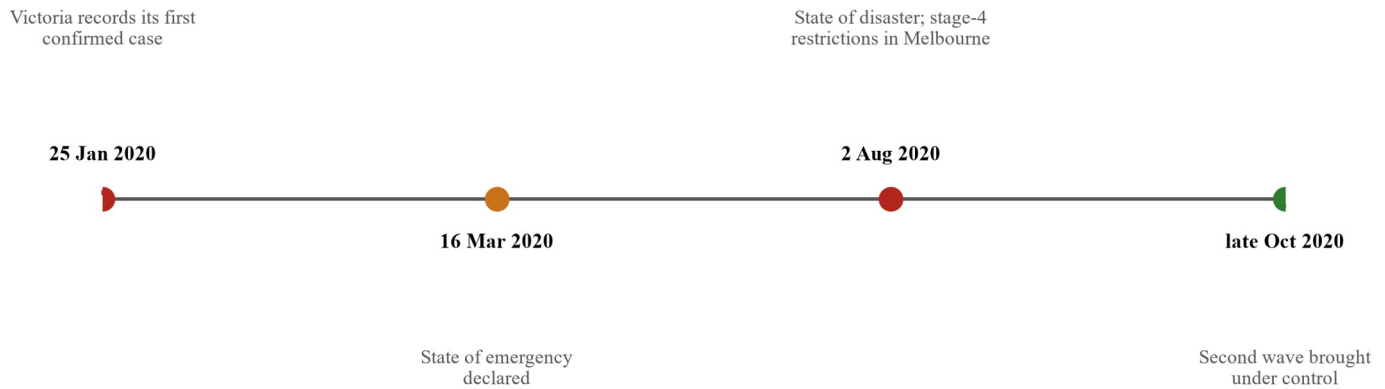
The global spread of the virus, key dated milestones (2019–2020)



Timeline of dated global milestones of the pandemic from December 2019 to March 2020

In Victoria, the pandemic unfolded through a series of dated milestones, from the first confirmed case in January 2020 to the second wave being brought under control late that year.

Victoria's 2020 experience of the pandemic (real, dated milestones)



Timeline of dated Victorian milestones of the pandemic in 2020, from the first case to the second wave being brought under control

The virus was first reported in **Wuhan, China**, in late **2019**. Because Wuhan is joined to the world by busy air routes, the virus travelled with infected people. Early cases appeared first in well-connected cities such as Bangkok, Tokyo, London and Los Angeles, and in **Australia**, where the first confirmed case was recorded in **Victoria on 25 January 2020**. On **11 March 2020** the World Health Organization (WHO) described the outbreak as a **pandemic** — a disease spreading across many countries at once.

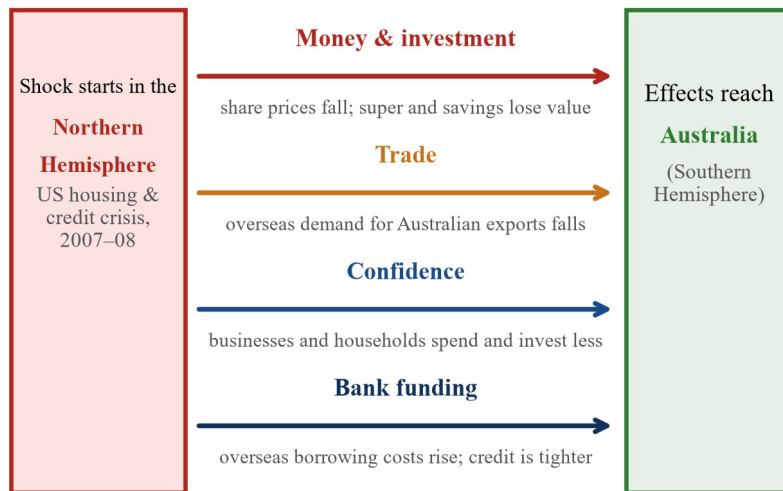
Step	Reasoning
1	The spread followed air-travel routes: connected cities got cases early. This is relocation diffusion carried by people as they travel.
2	After arrival, the disease spread person-to-person within each place (contagious diffusion).

Answer (incidence differences): Countries differed in how many cases they had because: (1) their **connections** differed — countries with more flights and trade links to the origin received the virus earlier and more often; and (2) their **responses** differed — countries that closed borders, quarantined people arriving from overseas and restricted gathering quickly slowed the spread. Density of population and the strength of health systems also changed the incidence.

The financial side: a shock travels between hemispheres (E04)

A financial disaster can spread just like a trend or a disease, because money and trade connect places. The **Global Financial Crisis (GFC)** of 2007–09 began in the **Northern Hemisphere**, in the United States housing and credit market, yet it was quickly felt in the **Southern Hemisphere**, including in Australia. The figure below shows the channels (routes) a shock travels along.

How a Northern-Hemisphere financial shock reaches Australia



Each channel is a route of interconnection. A shock that starts in one hemisphere can travel along all of them at once.

Flow diagram of four channels — money and investment, trade, confidence, bank funding — carrying a Northern-Hemisphere financial shock to Australia

How and why the crash reached Australia:

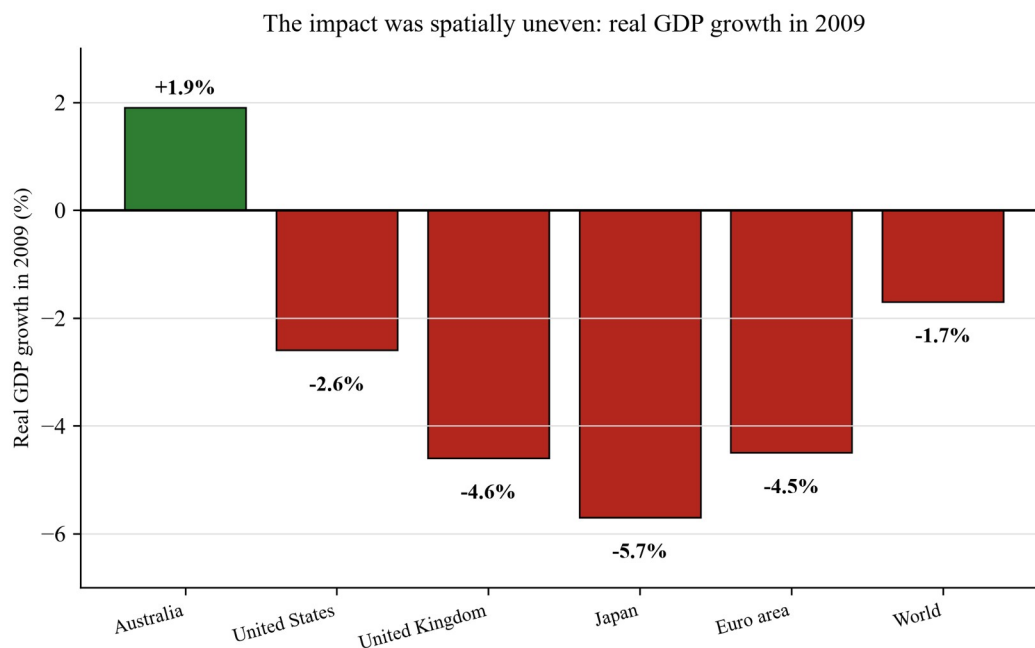
1. **Money and investment.** Australian superannuation (super) funds and banks hold shares and assets in overseas markets. When Northern-Hemisphere share markets crashed, the value of those holdings fell, so Australian savings and share prices fell too.
2. **Trade.** When the North went into recession it bought fewer Australian exports, so export income and some Australian jobs were at risk.
3. **Confidence.** Seeing a crash overseas, Australian households and businesses became cautious and spent and invested less.
4. **Bank funding.** Australian banks borrow part of their money overseas; when overseas credit tightened, borrowing at home became harder and more costly.

The impact, however, was uneven. The next figure shows the ASX 200 index across the crisis.



Line chart of the ASX 200 across the Global Financial Crisis with real peak (Nov 2007, about 6,750) and trough (Mar 2009, about 3,120) marked

The ASX 200 fell from a peak of about **6,750 points (November 2007)** to a trough of about **3,120 points (March 2009)** — roughly half its value. Yet Australia avoided a **recession** (a period in which a country's total output, its GDP, falls). The final figure compares real GDP growth in 2009.



Approximate World Bank figures. Australia grew while several Northern-Hemisphere economies shrank (a recession). Australia's links to fast-growing Asian resource demand helped cushion the shock.

Bar chart of real GDP growth in 2009 showing Australia positive while the United States, United Kingdom, Japan and Euro area are negative

Australia still grew (about +1.9%) while several Northern-Hemisphere economies shrank (United States about −2.6%, United Kingdom about −4.6%, Japan about −5.7%). **Why?** Australia’s strong links to fast-growing Asian demand for its minerals and food cushioned the shock, and government and Reserve Bank action supported spending. So the same Northern-Hemisphere crash produced different outcomes in different places — the spread of a financial disaster is spatially uneven.

Putting it together

All three spreads — trends, pandemics and financial disasters — travel along the same web of interconnection. The table compares them.

Three kinds of spatial spread, compared

What spreads	What is carried	Main routes	Speed	Australian example
Trends (music, fashion)	An idea, style or behaviour	Social media, streaming, travel, trade	Days to weeks	“Gangnam Style” (2012)
Pandemics (e.g. 2020)	A disease carried by people	Air travel, then local contact	Weeks to months	First case in Victoria, 25 January 2020
Financial disasters	Loss of value and confidence	Share markets, trade, bank funding	Hours to days	ASX 200 halved, 2007–09 (GFC)

Comparison table of trends, pandemics and financial disasters showing what spreads, the routes, the speed and an Australian example

Practice questions

Scaffolded

- Q1.** Define the term *diffusion* as geographers use it.
- Q2.** Look at the diffusion-models figure. Name the model in which a new idea reaches capital cities before it reaches small towns.
- Q3.** Give one way that travel helps connect the world (E01).
- Q4.** The “Gangnam Style” video reached 1 billion views on 21 December 2012. State the month and year it was released, and the number of months the spread took.
- Q5.** Name the city where the virus causing COVID-19 was first reported, and the Australian state that recorded the first confirmed case on 25 January 2020.
- Q6.** List two of the four channels shown in the financial-shock figure.

Unscaffolded

- Q7.** Explain why the spatial spread of a pandemic follows air-travel routes in its early stages.
- Q8.** “The impact of the GFC was spatially uneven.” Use evidence from the GDP figure to support this statement.
- Q9.** A new dance craze starts in a world city, is copied by big media channels, then spreads person-to-person in schools. Identify the diffusion models in this order.

Q10. Explain two reasons why the number of COVID-19 cases (the incidence) differed between countries (E03).

Inquiry task

A spread of your choice. Choose **one** of: a music or fashion trend, a disease outbreak, or a financial shock. Using one or more of the figures in this section as a model, produce a labelled diagram or small map (on paper or with a digital tool) that shows: (a) the place the spread began; (b) at least three places it reached, in order; (c) the routes it used; and (d) which diffusion model(s) it follows. Add a 2–3 sentence caption explaining why the spread was fast in some places and slow or absent in others. Use real, named places.

Answers

Q1. Diffusion is the spread of an idea, behaviour, disease or shock across space from where it began to new places.
Q2. Hierarchical diffusion. **Q3.** Any one: people who travel carry ideas, goods, money or diseases between places; flights and shipping join distant places so things move quickly. **Q4.** Released July 2012; about five months (July to December 2012). **Q5.** Wuhan, China; Victoria. **Q6.** Any two of: money and investment; trade; confidence; bank funding. **Q7.** Early cases travel with infected people as they move, and air routes connect the origin to the most-connected cities first, so the first cases appear along those routes. **Q8.** Australia grew about +1.9% in 2009 while the US (−2.6%), UK (−4.6%) and Japan (−5.7%) shrank — different outcomes in different places from the same shock. **Q9.** Hierarchical, then contagious. **Q10.** Any two of: different travel/trade connections to the origin; different responses (borders, quarantine, restrictions); different population density; different health systems.

Fully-worked solutions

Q1. In geography, diffusion is the process by which an idea, behaviour, disease or shock spreads across space, moving from the place it began (the origin) to new places. It is the spatial spread shown in the models figure.

Q2. The model described — an idea reaching capital cities before small towns — is hierarchical diffusion, because it moves down the hierarchy of places from the largest, most connected nodes to the smaller ones.

Q3. Travel joins distant places: people who travel carry ideas, goods, money, fashions and sometimes diseases with them, so what happens in one place can reach another place quickly.

Q4. The video was released on 15 July 2012 and reached 1 billion views on 21 December 2012. July to December is about five months, so the spread from South Korea to a world audience took about five months.

Q5. The virus was first reported in Wuhan, China. In Australia, the first confirmed case was recorded in Victoria on 25 January 2020.

Q6. Any two of the four channels: money and investment; trade; confidence; bank funding.

Q7. A pandemic is carried by people. In the early stages most infected people are on the move along air routes from the origin. Well-connected cities receive the most of these people, so they receive the virus first (relocation diffusion). Only later does it spread within each place by contact. This is why the early spread of the virus maps onto the world's air-travel network.

Q8. “Spatially uneven” means the same event affects places differently. In 2009, after the Northern-Hemisphere crash, the GDP figure shows Australia at about +1.9% (growth) while the US, UK, Japan and the Euro area were all negative (recession). Australia's links to Asian resource demand cushioned it, so the crash hit the North harder than Australia — clear evidence the impact was uneven across space.

Q9. The craze starts in a world city and is taken up by big media channels first — that is hierarchical diffusion (big, well-connected nodes first). It then spreads person-to-person in schools — that is contagious diffusion. Order: hierarchical, then contagious.

Q10. The incidence (number of cases) differed because countries had different **connections** to the origin (more flights and trade meant earlier, more frequent arrival of the virus) and different **responses** (closing borders, quarantine and gathering restrictions slowed spread). Population density and health-system strength also varied, changing how far the disease spread once it arrived.

Sources (real, checkable referents; figures computed from the values shown): “Gangnam Style” release 15 July 2012 and first YouTube video to 1 billion views 21 December 2012 (public record); COVID-19 first reported in Wuhan late 2019, WHO pandemic declaration 11 March 2020, first confirmed Australian case in Victoria 25 January 2020 (WHO and Australian Government health reporting); ASX 200 peak $\approx$ 6,750 points Nov 2007 and trough $\approx$ 3,120 points Mar 2009 (ASX market data, approximate closing values); 2009 real GDP growth (World Bank national accounts, approximate). All retrieval dates on or before 25 August 2026.